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CULTURAL RESOURCE INVENTORIES OF
PROPOSED ABANDONED MINE RECLAMATION
IN LEWIS & CLARK, McCONE, POWELL,
ROSEBUD COUNTIES, MONTANA

HRA HISTORICAL RESEARCH ASSOCIATES

P.O. Box 7086
Missoula, Montana 59807-7086
(406) 721-1958

Sunshine Building, Suite 307
110 2nd Street S.W.
Albuquerque, New Mexico 87102
(505) 243-6299

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DRAFT REPORT

CULTURAL RESOURCE INVENTORIES OF PROPOSED ABANDONED MINE RECLAMATION AREAS IN LEWIS & CLARK, McCONE, POWELL, AND ROSEBUD COUNTIES, MONTANA

Prepared for

Montana Department of State Lands
Abandoned Mine Reclamation Bureau
Helena, Montana

by

Janene M. Caywood, Principal Investigator
Daniel F. Gallacher, Project Historian

Historical Research Associates
Missoula, Montana

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CULTURAL RESOURCE INVENTORIES OF PROPOSED ABANDONED MINE RECLAMATION AREAS IN LEWIS & CLARK, McCONE, POWELL, AND ROSEBUD COUNTIES, MONTANA

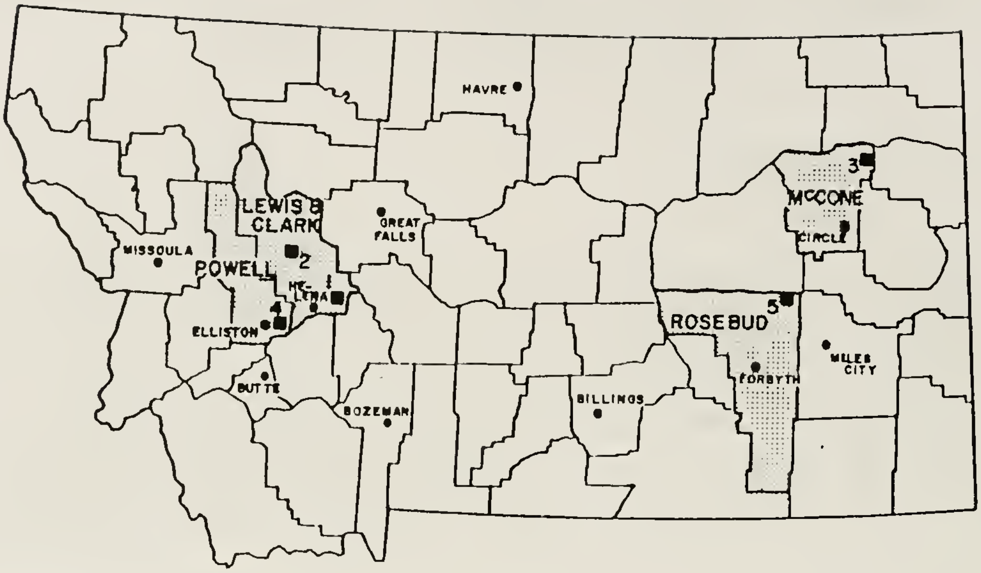
1.0 INTRODUCTION

Montana Department of State Lands (DSL), Abandoned Mine Reclamation Bureau (AMRB), contracted with Historical Research Associates (HRA) of Missoula, Montana, to conduct cultural resource inventories of several proposed abandoned mine reclamation areas located throughout the State of Montana. The five proposed reclamation areas discussed in the following report include:

(1) the Golden Messenger and Carbonate project areas located in Lewis and Clark County;
(2) the Grandview project area located in McCone County;
(3) the Elliston Limestone Quarry project area located in Powell County; and
(4) the Rock Springs project located in Rosebud County.

These project areas include both coal and hard rock mines, all of which were inventoried during the 1987 field season. Figure 1 shows the locations of the five project areas.

The process of reclamation not only has the potential to destroy the mine to be reclaimed, but it may also involve ground-disturbing activity in areas adjacent to the mine. The potential for additional ground disturbance can threaten prehistoric sites or other sites that are unrelated to mine development. Thus, HRA's field work included a pedestrian inventory of the proposed reclamation area and recordation and evaluation of the mine to be reclaimed, as well as for all sites located in the vicinity of the mine that have the potential to be impacted by reclamation activities.



DSL Abandoned Mine Reclamation

Project areas by county:

Lewis and Clark
1. Golden Messenger
2. Carbonate

McCone
3. Grandview

Powell
4. Limestone Quarry

Rosebud
5. Rock Springs

Figure 1. Project Area Location Map.

Section 2.0 of this report provides a description of the field and research methods used to document the sites. Because the sites are so widely distributed throughout the state and because there is no unifying theme in terms of the resource being mined, the cultural overview presented in Section 3.0 is very general, and is drawn from HRA's previous reports of work conducted during the 1987 field season. Section 4.0 provides a brief synopsis of the available information regarding the development of the resource being exploited in the specific project area, a description of the physical remains at the sites located within the project area, the historical development of the site(s), an evaluation of National Register significance of the site(s), and a discussion of how the reclamation project will affect the site(s).

2.0 METHODOLOGY

Prior to the field survey, HRA requested a search of the cultural resource site files maintained by the State Historic Preservation Office (SHPO) in Helena, Montana. None of the proposed reclamation areas have previously recorded sites in the immediate vicinity.

As stated above, the projects included in this report include both coal mines and hard rock mines. The three hard rock mines include two gold/silver mines and a limestone quarry. The documents consulted while researching the development of each mine varied, depending upon the character of the mine.

For the coal mines, HRA consulted U.S. Geological Survey (USGS) Bulletins to determine the extent and history of coal mining in the general site vicinity. The specific history of the mines was compiled using information from the coal lease records maintained by the State Office of the Bureau of Land Management (BLM), county land transfer records, and interviews with local informants.

HRA reviewed a variety of documents in order to trace the historical development of the hard rock mines. These included documents housed in the Mansfield Library Archives at the University of Montana in Missoula, and at the library of the Montana College of Mineral Science and Technology in Butte. State and federal publications, as well as mining journals and newspapers, were reviewed for specific references to the Carbonate and Golden Messenger mines. HRA obtained information concerning the limestone quarry from federal and state publications and from local informants.

HRA employees conducted the field inventories of the five project areas during the months of June, July, and September, 1987. Composition of the field crew varied, but Janene Caywood served as the Principal Investigator and Field Director for all projects. Field crew members included Bill Hay, Ted Catton, and

Vickie Varnham. Daniel Gallacher, Project Manager, reviewed and edited the final draft of the report.

Field tasks included a pedestrian inventory of the area of potential impact. The extent of the areas inventoried at each project area depended upon the amount of information available to HRA at the time of the survey. Because we had no detailed reclamation plans for any of the project areas at the time that the surveys were conducted, we set an arbitrary survey boundary of 100 meters (300 feet) from any given feature. Comparison of reclamation plans for other sites indicated that the construction boundary usually does not extend farther than this from individual mine features. In any event, pedestrian coverage of the area was equivalent to that achieved by walking transects spaced at 30-meter intervals.

In addition, the field crews prepared a sketch map of all cultural resource sites located within the project area, photographed the overall site area and individual site features, and recorded information for completion of a cultural resource site form.

3.0 CULTURAL CONTEXTS

3.1 Historic Coal Mining

Coal mines of the historic period can be divided into two categories: large-scale production mines, operated to provide a product for the railroad and mining industries, and small wagon mines, typically operated by one or a few miners to provide coal for a local market. Usually these wagon mines served individual families, small groups of individuals living in close proximity to the mine, or, sometimes, small urban communities. The coal mines discussed in this report may be described as wagon mines.

The acquisition of locally available coal for domestic fuel needs began with the influx of settlers onto the eastern plains beginning in the 1880s. Within Montana, the dependence upon wagon mines for coal was greatest in the eastern part of the state, although small, local coal mines are found in lesser frequency throughout most of the state.

The following excerpt from a 1906 USGS Bulletin aptly describes the reliance upon coal in eastern Montana:

> Besides the larger mines on or near the railroads there are hundreds of localities all over the area where lignite is mined on a larger or smaller scale. Throughout the greater portion of the area lignite is the only fuel used and the ranchmen occasionally haul it 10 or 15 miles. Usually, however, there is a seam near by from which a supply can be obtained. It is generally taken from an outcrop where it can be gotten with the least amount of labor. When the seam lies near the surface the lignite is reached by stripping, or if it is exposed in a cut bank or steep bluff it is removed from the face of the outcrop with the pick or by blasting (Leonard 1906:330).

Although this passage was written to describe the area around Miles City, it seems to apply to many areas within the central and eastern parts of the state.

For coal lying near the surface, overlying dirt, or "overburden," was either blasted or picked away, and the coal removed from the horizontal extent of the exposed coal seam.

Typically, miners used a team of horses pulling a scraper to dislodge the coal, which was then loaded into a customer's wagon or truck for transport back to the residence. Another method was to use a "slip" -- a kind of small bucket pulled behind a team of horses. One person guided the team and another guided the slip by walking behind it and holding onto its two handles. Later, scrapers were pulled with the use of a tractor or "cat" to dislodge the coal.

"Undermining" involved tunnelling an entry into the coal seam, and usually required the use of black powder to blast out the coal, forming "rooms" off the entryway. Once the coal was loosened by the blasting, it could be picked out and transported to the mine entrance. Rooms were usually 10-12 feet in width, with pillars of free-standing coal left to support the coal roof. Because of a lack of available timber, relatively few individuals timbered the interior of their mines, sometimes with tragic consequences.

Besides cave-ins there were many other dangers associated with undermining coal. The use of black powder posed a variety of hazards, and the coal dust suspended in the mine after an explosion created a volatile atmosphere. Proper ventilation was very important in underground mines. The safety of any mine depended in part upon the skill, and to some degree the personality, of the miner working it.

Some wagon mines, usually those mined for the small-scale commercial sale of coal, had interior tramways or rail systems. Coal cars were hauled either by hand or with horses, or sometimes with the use of small gasoline-powered generators. Although some coal seams lie at the level, many are inclined, and miners with tramways used gravity to get the loaded cars out of the mine, or alternatively, to get the empty cars back to the interior of the mine.

Generally, wagon mines were only operated during the winter, when people needed the fuel for heating. One or sometimes a few men would obtain a lease to mine federal- or state-owned coal from a given locality, although this formality often was ignored. Miners either lived at home and commuted to the mine, or stayed in a shelter at the mine site. Generally, the shelters found at wagon mines are not elaborate, having been built to meet the minimal needs of one or two individuals for shelter and cooking facilities.

The importance of local mines to people living in rural areas should not be underestimated. Presuming that the basic needs of shelter and food are at least minimally available, fuel for domestic- and agricultural-related activity represents the next most critical human need. The ready availability of coal to satisfy this need promoted the settlement of many areas of the open plains.

In addition, many individuals used coal mining to augment their income from farm and ranch work, especially during the 1930s, when money and credit were scarce. Most of the operators of the many wagon mines viewed themselves and their neighbors as primarily farmers and ranchers, and only as part-time miners.

Wagon mines were an integral part of the settlement and development of rural Montana. Products of these mines fulfilled a basic need of homesteaders and people living in small communities throughout Montana, and thus small-scale coal mining represents a historically significant pattern of human activity.

3.2 Historic Hard Rock Mining for Precious Minerals

Prior to the late 1850s, non-Indian settlement of the area today known as Montana was limited to a few small trading posts located in the intermountain valleys west of the Continental Divide. However, towards the end of the 1850s, gold prospectors began to move into the area and subsequent events brought the first large-scale movement of Euro-Americans into the territory.

Depletion of easily mined gold reserves in other western regions, most notably California and Colorado, motivated prospectors to move into previously unexplored regions, including the Rocky Mountains north of Colorado. After the first location of gold along a tributary drainage of the Clark Fork River by the Stuart brothers, prospecting in the region increased (Billington 1967:631). In 1862, the discovery of gold in the gravels of Grasshopper Creek, a tributary of the Beaverhead River, resulted in the establishment of the boom town of Bannack. The following year, in 1863, prospectors discovered gold on Alder Gulch, a tributary of the Gallatin River, and the gold town of Virginia City grew to support the approximately 4,000 miners who flocked to the area.

Miners arriving at Bannack and Virginia City too late to stake profitable claims continued to prospect throughout the mountain valleys of present-day Montana. In 1864, John Cowan discovered gold at Last Chance Gulch in present-day Helena, marking the last major gold strike within the Montana Rockies.

The development, or "evolution," of gold mining in Montana followed a pattern similar to that observed in other states and territories. The first people to discover gold were independent prospectors, who, for the most part, relied upon their own labor and the use of a variety of technologically simple devices to extract "free-milling" gold from placer deposits (i.e., sluices and rockers). Even hydraulicing -- the practice of washing out gold-bearing gravel lenses with high pressure hoses -- although requiring more capitol output than simple placering, was not beyond the means of the average miner. In general, the high-grade deposits of free-milling gold that could be profitably worked with these simple methods were quickly depleted. Although the staking of lode claims occurred at about the same time as the first placer mining, successful lode mining required great expenditures of human labor, and money -- all beyond the reach of the independent miner. Large-scale, profitable, lode mining in the Montana Rockies did not begin until transportation, technology, and capitol entered the territory.

One of the factors which hindered the development of mining in Montana, as in other areas, was the character of the ores. In many areas, the gold-bearing ore was "refractory," or mixed with other metals. Ores such as these required complex smelting (reduction by fire), before the gold could be extracted. During the early days of mining in Montana, smelters were virtually nonexistent, or were crude and inefficient. In addition, there was no economical way for small gold-mining companies or individual enterprises to transport ore to smelters in different parts of the country or the world.

The transportation problem was solved in part by the construction of the Northern Pacific Railroad through Montana Territory in 1883. Branch lines soon accessed major mining districts, making the construction of mills and smelters and the transportation of ores economically feasible.

Another problem that limited the development of both placer and lode mining was the lack of an economical method for extracting gold from low-grade ores. This problem was not solved until 1891, when the process of cyanidation was introduced in the United States. This process was "based on the chemical fact that the cyanide radical is one of the very few common and reasonably cheap compounds for which gold has a decided affinity" (Young 1970:284). Cyanidation worked with both free milling and refractory ores, although the latter still required roasting and additional preliminary treatment prior to being introduced to the cyanide solution:

> The opening act of the process was simplicity itself: merely run gold-bearing sands or slimes into a 0.005 sodium-cyanide solution, agitate well in the presence of air, and let nature take its course. Without fuss or trouble metallic gold would very quickly dissolve into the solution, which could then be decanted merely by opening a valve.
>
> Recovery of the dissolved gold was equally simple. The pregnant liquor was run through beds or boxes of fine zinc shavings, which precipitated the gold back to metallic form... (Young 1970:284).

The cyanide process allowed miners to rework abandoned tailings at a profit and to initiate extraction of low-grade ores from mines that had previously been unprofitable. By 1891, "nearly every precious metal mill in the world was converting to cyanidation" (Young 1970:285).

In 1897, another new technological innovation arrived on the Montana mining scene -- the gold dredge:

> A hybrid of gold-rush river mining and of ordinary sand dredging, it had been developed by the New Zealanders, who had devised a floating dredge carrying its own gold-saving equipment (Young 1970:132).

The floating gold dredge consisted of a series of buckets mounted on a conveyor. Movement of the conveyor was powered by steam, and when it turned, the buckets were dragged through the gravel of the stream bed.

> The best dredging ground was found in contemporary river valleys whose surface and streams possessed little grade.... The question of low mean grade and broad alluvial overburden was critical to dredging, since its secret lay in the creation of a broad artificial pond several feet deep, which actually moved forward with the progress of the work (Young 1970:132).

By the end of the 1890s, Montana miners were reworking with dredges many of the placer deposits that first were exploited in the 1860s using placer and hydraulic mining techniques. Like lode mining, large, efficient dredges required large capital outlays. Thus, extensive dredging mainly fell within the province of organized gold-mining companies rather than with individual miners.

Throughout western Montana, groups of miners working in a given area organized themselves into mining districts, the boundaries of which often corresponded to natural drainage systems. Prior to statehood, the mining district provided the only formal unit of political control. Members of the mining district passed laws and elected officials to enforce the laws.

After statehood in 1889, responsibilities for keeping the law and order of the district were transferred to the counties, and the concept of the mining district began to be more generally used as reference names for different mining areas. New mines might be incorporated into the district, expanding the boundaries. However, these expanded boundaries did not necessarily reflect a "political" unit wherein people were governed by an established set of rules. The Golden Messenger Mine is located in the York District, northeast of Helena. The Carbonate Mine is located in the Heddleston District, northwest of Helena.

3.3 The Lime Industry in Montana

One of the reclamation areas investigated for this report consists of the remains of a limestone quarry. Although mining limestone can be included under the more general category of hard rock mining, processing the raw material requires a simple but specialized technology.

Eugene S. Perry provides an excellent summary of the history of lime production in Montana in a 1949 publication of the Montana School of Mines entitled "Gypsum, Lime and Limestone in Montana." The first recorded production came from a quarry near Helena in 1888. However, early settlers probably produced small quantities of lime prior to that date. Yet, generally, there seems to be a lack of emphasis on lime production in relation to the economic development of the state.

> No adequate record of this industry has been kept, an industry which over a period of 50 years in Montana has yielded annually an average of$30,000 in sales, and in some years nearly $100,000. Perhaps the burning of limestone to form lime was too commonplace in a state where millions of dollars were being realized from the exploitation of precious metals (Perry 1949:33).

The production of lime, quicklime, or calcium oxide is achieved by heating pure limestone (calcium carbonate) to 1,648° Fahrenheit, the point where the carbon dioxide is released from the limestone. The calcium oxide is left in solid lumps. Hydrated lime is another product of limestone, made by taking the above-mentioned process one step further. It is formed by:

> adding water to calcium oxide, a process called slaking. These two ingredients combine chemically, the hydroxide of calcium is formed, heat is given off, and the material swells. On a large scale the mixing is done mechanically in a large trough or a vertical device through which passes a shaft equipped with revolving plows. If the correct amount of water is added, the resulting hydrated lime is a fine dry powder. Hydrated lime does not alter when stored, but quicklime commonly will alter in the air... (Perry 1949:26).

The equipment required to make lime from limestone is fairly simple. One can produce lime simply by burning limestone in a open fire and removing the chunks of calcium oxide from the ashes. Perry describes a more sophisticated process:

> More elegant is the method of building a simple stone or brick kiln resembling a large chimney in which fuel is burned at the base or mixed with the limestone. In simple operation this process is intermittent. By confining the fire and controlling the limestone feed, a continuous operation may be maintained (Perry 1949:26).

Perry (1949:27) divides the uses of lime into three general categories: agricultural, structural or construction, and chemical or industrial. Apparently, the lime processed at Site 24PW446 was marketed primarily for use in the construction industry (Perry 1949:35). In construction, lime is used as a component of a variety of materials, including masonry mortars, stucco, wall plaster, and with Portland cement for concrete work.

Again, according to Perry (1949), the lime industry in Montana is similar to other areas of the country in that sources of pure limestone were relatively common, and most production during the historic period was designed to meet local demands.

4.0 RESULTS OF FIELD WORK

As stated above, several different types of mines are included in this report. In the following section, the coal mines are discussed first, the precious metal hard rock mines second, followed by the limestone quarry.

4.1. The Grandview Project Area (McCone County)

The Grandview project includes two reclamation areas (Grandview East and Grandview West), both located in Township 25 North, Range 50 East, at the eastern edge of McCone County (Figure 2). The project area lies directly northeast of the Redwater River, a tributary of the Missouri River. The area may be described as gently rolling grassland cut by shallow, intermittent drainage systems. The larger coulees may contain typical riparian vegetation for the area, including dense stands of box elder, alder, willows, buffalo berry, and chokecherry.

Like many other counties in central and eastern Montana, the history of coal production in McCone County coincides with the first settlement of the area by Euro-Americans. The specific project area was included in a 1908 survey by Carl D. Smith, during which he attempted to map the Fort Peck Indian Reservation lignite field (Smith 1910). A map that accompanies Smith's survey report of the area shows no coal outcrops, prospects, or mines within or near the current project area.

USGS Bulletin 905 provides a general discussion of the coal resources of McCone County (Collier and Knechtel 1939). McCone County coal is described as follows:

> The coal of McCone County ranks as a lignite, having a heating value of about 8,000 British thermal units, and the estimated quantity of coal in 24,938,432,000 short tons (Collier and Knechtel 1939:1).

The authors stated that almost all of the limited quantity of coal mined in the area was consumed within the county.

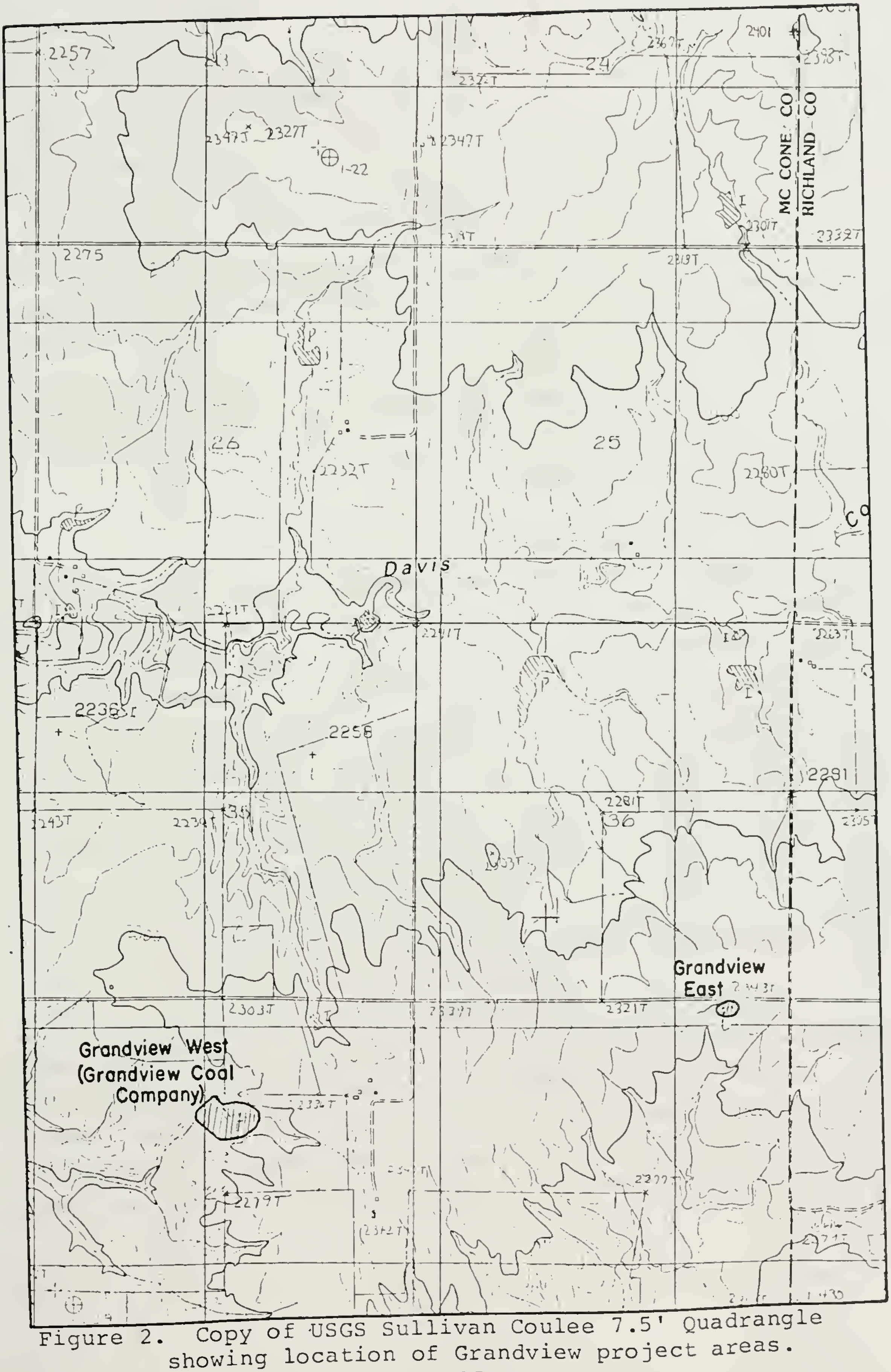


Figure 2. Copy of USGS Sullivan Coulee 7.5' Quadrangle showing location of Grandview project areas.

Although the Collier and Knechtel report was published in 1939, they conducted primary field work near the current project area in 1922 and "partially re-examined" the region in 1929. As of 1929, the only reference to coal in the immediate project vicinity was a location where the field investigators measured 15 feet of coal in the wall of a well. This locality lies within Section 1 (T25N, R50E), apparently in the vicinity of the Grandview East project area. The report contains no reference to prospecting or mining at the second Grandview reclamation site located in Section 2 (T25N, R50E).

4.1.1 Grandview East Reclamation Area (Site 24MC224)

Description of Physical Remains

The features located at the Grandview East site are limited to two shallow, circular depressions (Figure 3). The first of these is located about 70 meters south of an east/west section road near the edge of a plowed field. This feature is less than 0.3 meter in depth and about 5 meters in diameter (Figure 4). The second depression is located southwest of the first, below the edge of the plowed field, adjacent to the east side of a shallow drainage (Figure 5). This is the larger of the two, measuring approximately 6 meters in diameter - with a depth of about 1 meter. The interior is filled with rocks.

Historical Development

According to the landowners, these features are not associated with coal mining. Mrs. Myron Doornek (1988) indicated that these features represent the location of a former homestead, removed more than 50 years ago. A sparse scatter of historic debris in the plowed field surrounding Feature 1, including bottle glass and crockery fragments, supports this assumption.

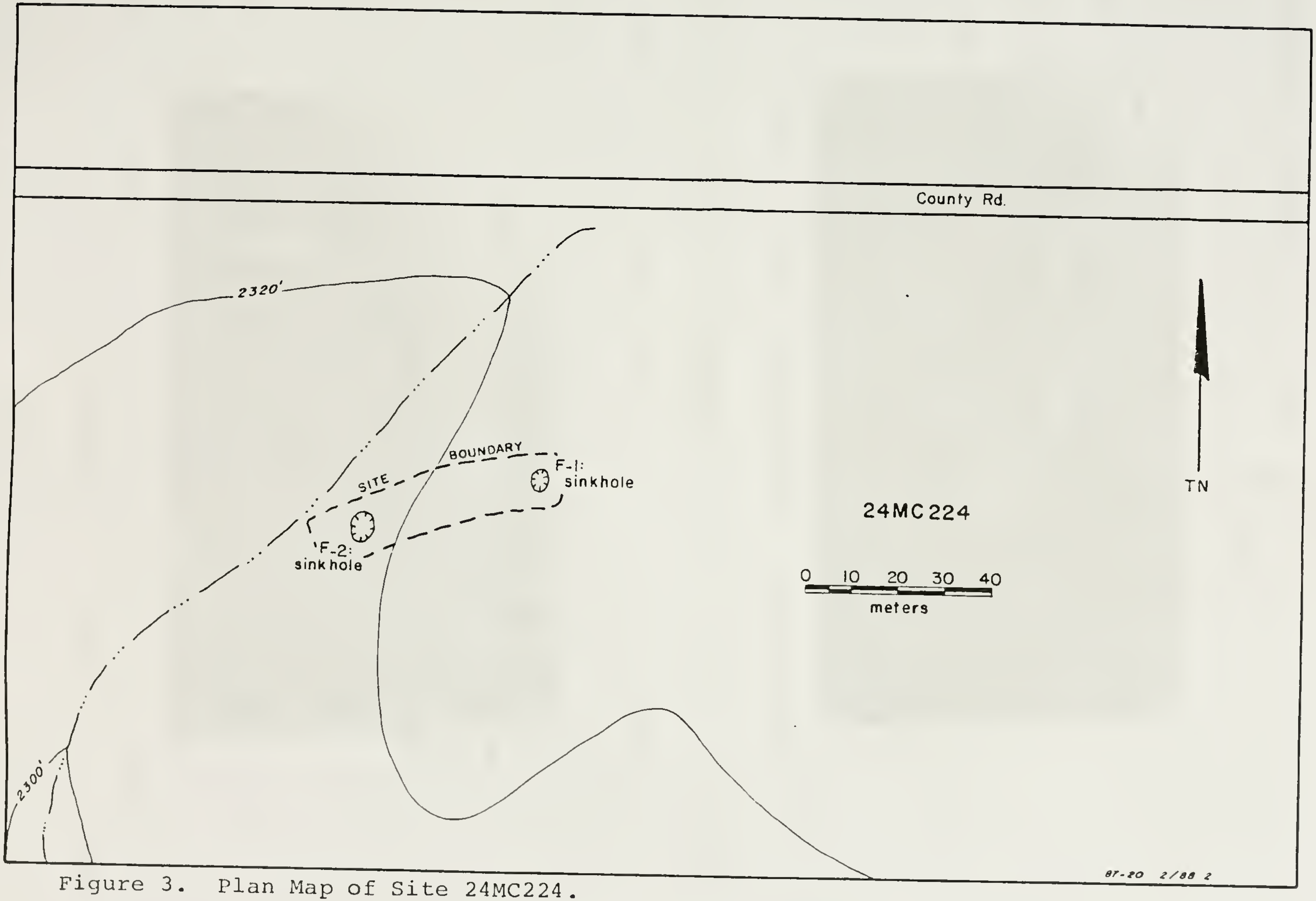


Figure 3. Plan Map of Site 24MC224.

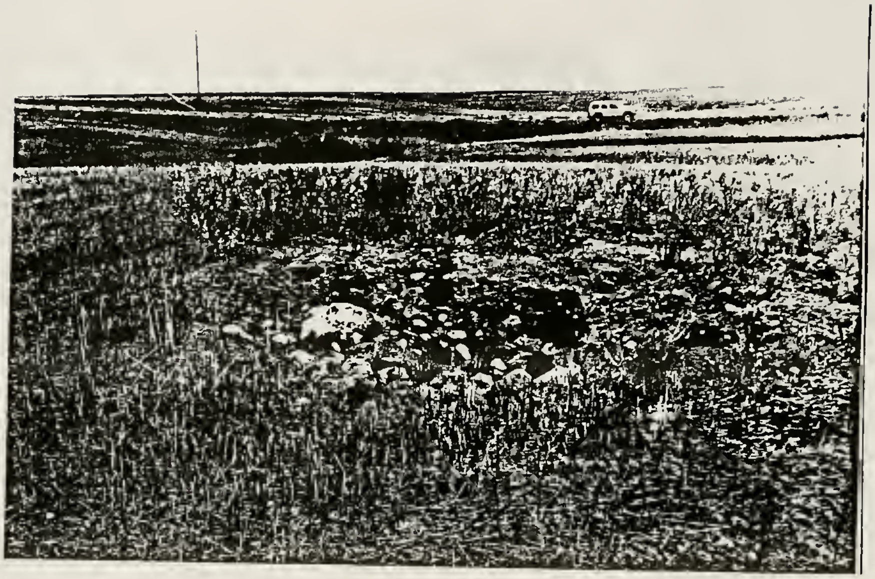


Figure 4. Feature 1 at Site 24MC224.

Figure 5. Feature 2 at Site 24MC224.

Furthermore, the Historical Index for T25N R50E, maintained by the State Office of the Bureau of Land Management in Billings, contains no record of a coal lease for the NE1/4 of Section 1. This site appears to be located in the general vicinity of the well discussed in Collier and Knechtel's 1939 report. It is assumed that the well was associated with the homestead.

Evaluation and Recommendation

This site does not meet the eligibility requirements for nomination to the National Register. The physical integrity of the site has been completely destroyed by removal of the structures and subsequent cultivation of the site.

4.1.2 Grandview West Reclamation Area (Site 24MC225)

Description of the Project Area

The features to be reclaimed in the Grandview West project area are located on two separate mining coal leases, located on adjacent 40-acre parcels (Figure 6). The Grandview Coal Company obtained a lease in 1930 for the SW1/4 NE1/4 of Section 2. In 1950, several members of the Grandview Coal Company obtained a lease for the SE1/4 NW1/4, adjacent to the eastern boundary of the earlier lease. It appears that several of the families involved in mining coal under the first lease also mined coal from the second lease area. For this reason, both areas are included under one Smithsonian site number.

The first features described below are associated with the underground workings at Coal Lease No. GF76771. This 40-acre lease straddles the head of an unnamed, brush-filled coulee. Miners extracted coal from both the north and south banks of the coulee. The vegetation in the bottom and sides of the coulee is

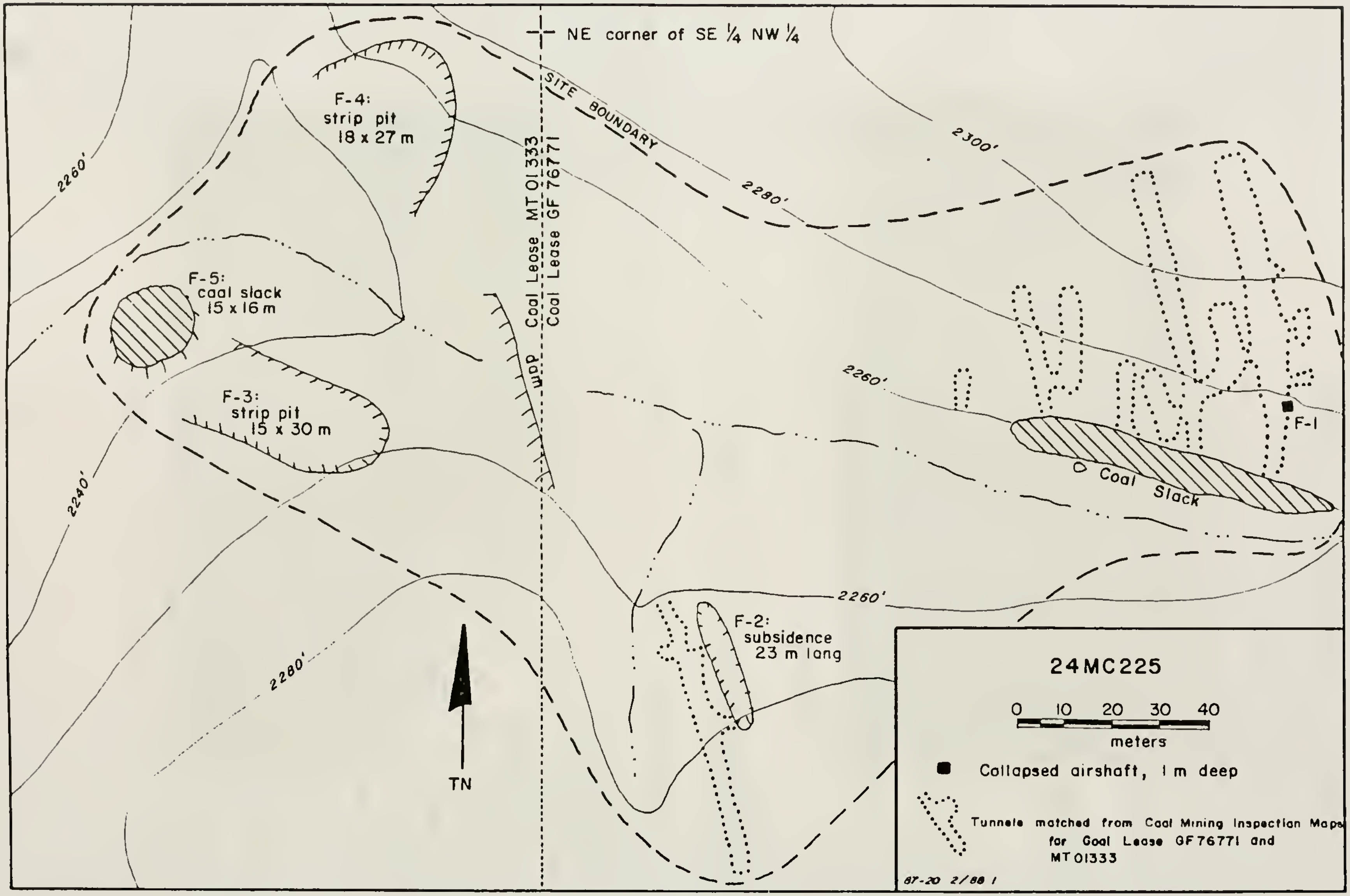


Figure 6. Plan Map of Site 24MC225.

very dense, making it difficult to distinguish individual features. The most noticeable remains of mining on the north side of the coulee is the coal stain in the coulee bottom. The slope above the coal stain is also obviously disturbed, and there is one distinct feature -- a subsidence hole (Feature 1) that the reclamation engineers have identified as a collapsed air shaft over Entry No. 1. Figure 6 shows the location of Feature 1 in relation to the underground workings of the mine, as determined by the reclamation engineers.

Another subsidence area that appears to represent a collapsed tunnel is located on the south side of the coulee, near the west claim boundary (Figure 7). Reclamation engineers have identified this as the former location of Entry No. 7.

The remaining features at the mine are associated with Coal Lease MT01333, and represent strip mining rather than undermining. One strip pit (Feature 4) is located on the north side of the coulee, and another strip pit (Feature 3) and a large coal slack pile (Feature 5) are located on the south side of the coulee (Figures 8 and 9).

Historical Development

As stated above the remains at this site results from two separate, but adjacent coal leases. The first lease (GF076771) was obtained in 1931 by a group of families organized under the name of the Grandview Coal Company (Serial page for GF076771, BLM State Office, Billings). However, an Inspector's Report dated June 20. 1931, indicates that coal had been extracted from the area prior to 1931:

Figure 7. Looking south-southeast over Feature 2, a subsidence area obscured by brush at Site 24MC225.

Figure 8. Overview of Site 24MC225, looking to the east-southeast of Feature 3 (strip pit) and Feature 4 (coal slack). Coal slack is visible in the foreground.

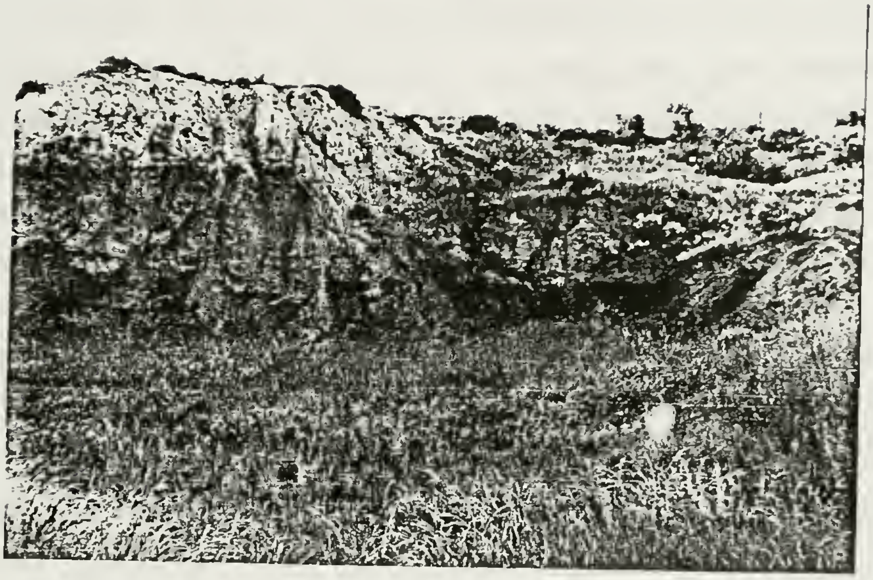


Figure 9. Overview of Feature 4, a strip pit on the north side of the coulee at Site 24MC225.

> A rather extensive amount of surface and underground mining has been carried on through a period of years in the coulee embraced in the land under license.
>
> The mine opening is located in the north side of the coulee approximately 250' south and 600' east of the northwest corner of the forty.... Considering the age of the mine workings, they are in good shape as far as roof conditions are concerned. This entry was advanced 15' last winter by two members of the license [GF076771] (Inspection Report 1931).

It appears that the Grandview Coal Company simply extended the workings of a mine opened previously. In any event, the first workings were on the north side of the coulee. In subsequent years, the licensees developed a series of entries into the coal seam west of the first entry on the north side of the coulee, as well as two entries on the south side of the coulee near the west lease boundary.

Myron Doornek (1987), the current landowner and relative of one of the original lessees, indicated that 15to 20 families used the mine, each extracting their own coal. The original officers of the company included Joe A Flock, President; Muriel LaHaye, Secretary; and Joseph Doornek, Treasurer. Flock acted as manager of the coal lease for only a year. He turned over management of the mine to M.J. LaHaye in 1932. LaHaye continued in this capacity until approximately 1946, when he moved away from the area. (Information compiled from Mine Inspectors' reports included as part of case file for Coal Lease GF076771.)

Under the terms of the coal license, the original licensees could not legally mine coal for sale to people not named as members of the company in the license. Therefore people continued to be added as license members throughout the 16 years of mining at this location. In 1936, an application was filed to add Wilfred E. Cheeney, Paul Kuehn, Glen Miller, and T. Trischler to the list of license members. In 1940, Jacob Neumiller and F. Bartley (?) were added to the list, and in 1942, Orias Jagner, Mrs. Grace Millard, School District #3 (Hilger School), Sacred Heart Church, Clarence Olson, Adrian Legare, and several others joined the Grandview coal association. People continued to be added to the list of members until 1946. (Information compiled from documents included in case file for Coal Lease GF076771.)

Relatively little development work appears to have been done at the mine other than that associated with removal of coal. Following is a description of the method of coal extraction at the mine:

> Members of the license divide themselves into groups and agree on where to work in each of five mines [entries]. Since the last inspection on August 28, 1943, member LaHaye has made a new opening just west of the old pit.... About 5 feet of coal is mined off the solid, FFF black powder being the explosive used. It [the coal] is loaded in wheel barrows or small hand carts and transferred into wagons and trucks on the surface. Roof conditions in all mines are good as the top is coal and the overlying cover is shallow (Lerwill 1945).

The lessees continued to mine coal from this area until 1947. J.R. Lerwill, District Mining Supervisor, inspected the mine in October 1947. At that time he found the two entries on the south side of the coulee and the eastern two entries on the north side of the coulee blocked by "clay falls." Two of the original five entries at the upper end of the coulee, as well as an entry in the northwest corner of the lease, had been extended since the previous inspection in 1946. The entry in the northwest corner of the lease area was the only one showing signs of recent work. The remaining entries had "[a]s much as two feet of silt from spring floods" on the floor of the entryways (Lerwill 1947). Lerwill estimated that the lessees had removed about 100 tons of coal from the entries within the lease area since the previous inspection.

Lerwill submitted his report to H.I. Smith, Chief of the Mining Division of the USGS in Washington, D.C. Smith (1947) responded that the "license expired by limitation of law on March 28, 1947, and that no further action is necessary." Since the departure of LaHaye, no one had assumed his managerial responsibilities and, because the application for a standard two-year extension had not been submitted, the General Land Office (GLO) cancelled the lease.

In 1950, the GLO in Billings issued a license to mine coal to D.H. Lemieux and Clarence Olson for the 40-acre parcel adjacent to the west boundary of the former Grandview Coal Company license area. During this same year, Lemieux's license was amended to include Joe Bailly, Armand Richard, and Leo Richard. The lessees renewed their lease every two years, and in 1954, Melvin Doornek was added as a new licensee. In 1960, the license was renewed in the names of Dona Lemieux, Paul Kuehn, and Myron A. Doornek. The last application for extension of the lease was filed in 1962, under the names of Paul Kuehn, Myron Doornek, and Wilfred Cheeney. The results of a 1963 inspection of the mine indicated that it had been inactive for some time, and that "[m]ost of the licensees are now using gas or purchasing better grade coal for heating purposes" (Moffitt 1963). The BLM cancelled the license in 1964.

Evaluation and Recommendation

The history of this mine is interesting as an example of the way in which a known coal resource was developed and exploited by a local population. Although the strip pits associated with the later coal license are intact, these represent only the later phase of mining at the site. The features associated with the underground mine have disintegrated to the point where they are barely distinguishable. Thus, the features remaining at the site fail to give a balanced picture of the history and development of coal at this locality. Due to a lack of physical integrity, the site does not appear to be eligible for nomination to the National Register of Historic Places.

Reclamation at this site probably will include removal of the material from the coal slack pile and backfilling the subsidence areas. There are no other cultural resource sites located in close proximity to the areas to be reclaimed, and HRA recommends that no additional cultural resource work be conducted at the site prior to reclamation.

4.2 The Rock Springs Project Area (Rosebud County)

The Rock Springs project area is located in Rosebud County, adjacent to the east edge of State Highway 22, the main road between Miles City and Jordan, Montana (Figure 10). Although early USGS Bulletins provide details of the distribution of coal in many parts of Rosebud and adjacent counties, none include specific discussions of the coal in the township that contains the Rock Springs project area. However, the area identified by

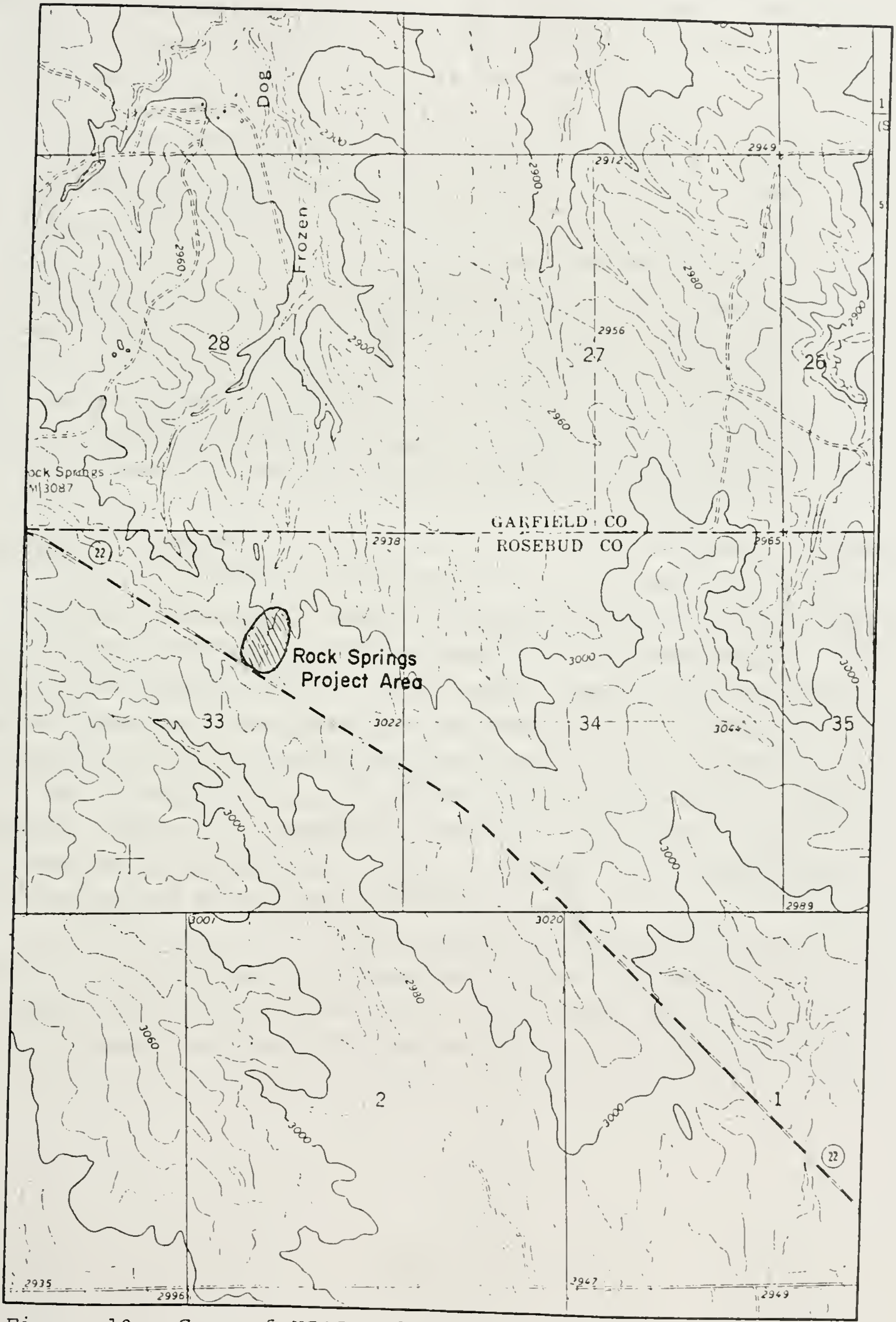


Figure 10. Copy of USGS Red Buttes 7.5' Quadrangle showing location of Rock Springs project area.

Sherburne Rogers (1913) as the Little Sheep Mountain coal field lies directly below this township. Rogers examined the area prior to 1911, and describes the coal field as follows:

> The area known as the Little Sheep Mountain coal field is 24-30 miles wide from north to south and extends westward about 60 miles from the neighborhood of Terry, Mont. .... It is bounded on the east by Yellowstone River and on the west by the tenth guide meridian. The total area is 1,440 square miles. The district extends from Yellowstone River to the top of the Missouri-Yellowstone divide. The coal outcrops run in a general east-west direction, extending back from the river in the westward portion of the district owing to the slight dip of the rocks and the extensive dissection of the upland by Sunday Creek. The area does not a constitute a structural or stratigraphic unit but is merely an arbitrary division of the southwestern portion of the large coal region which covers much of the eastern part of Montana and the western part of North Dakota (Rogers 1913:159).

Rogers describes the coal in this region as "higher in grade than true lignite and much of it possesses the physical characteristics of subbituminous coal" (Rogers 1913:175).

Rogers examined the township immediately below the one containing the current project area, and found indications of a narrow underlying coal seam at two localities. However, he does not mention a mine in the immediate vicinity, and states that "nearly all the coal mining in the district is done in the autumn" (Rogers 1913:176), indicating small-scale coal extraction probably for a local market. Later, more detailed, studies of Rosebud County coal focus on different parts of the county, mostly south of the Yellowstone River.

The survey of the Rock Springs project area resulted in the recording of two sites: the coal mine to be reclaimed, and a prehistoric site located on the periphery of the construction area.

4.2.1 The Rock Springs Coal Mine (Site 24RB1509)

Description of Physical Remains

HRA originally located four tunnels at this site. However, all have been closed, and it is difficult to discern from surface indications the extent of the mine workings (Figure 11). For the most part, the surface of the subsidence areas over the former tunnels has revegetated naturally (Figure 12). The most obvious evidence of former activity is the rather large amount of trash currently at the site, not all of which appears to be associated with the actual mining activity, but rather simply from use of the area as a dump site. On casual examination, the stripped area appears to be a naturally occurring dry coulee.

Historical Development

Mining at this site began in a manner similar to that of many small, local consumption coal mines in eastern Montana. According to John Fadhl (1987), a former operator of the mine, ranchers from the community first mined coal at the site prior to 1927 by stripping the overburden from the top of an exposed coal seam. Fadhl began to tunnel into the coal seam in 1927 or 1928, and mined the coal for commercial sale. For the next three years, he mined in the fall and winter months only, sometimes with the help of his father but mostly alone.

Fadhl mined the coal in 10-12 foot "rooms," leaving only pillars of coal between the rooms for support. He used powder to blast out the coal and then separated the slack from the good coal. Apparently, safety was not Fadhl's primary concern, since in his own words he "took a lot of chances" (Fadhl 1987).

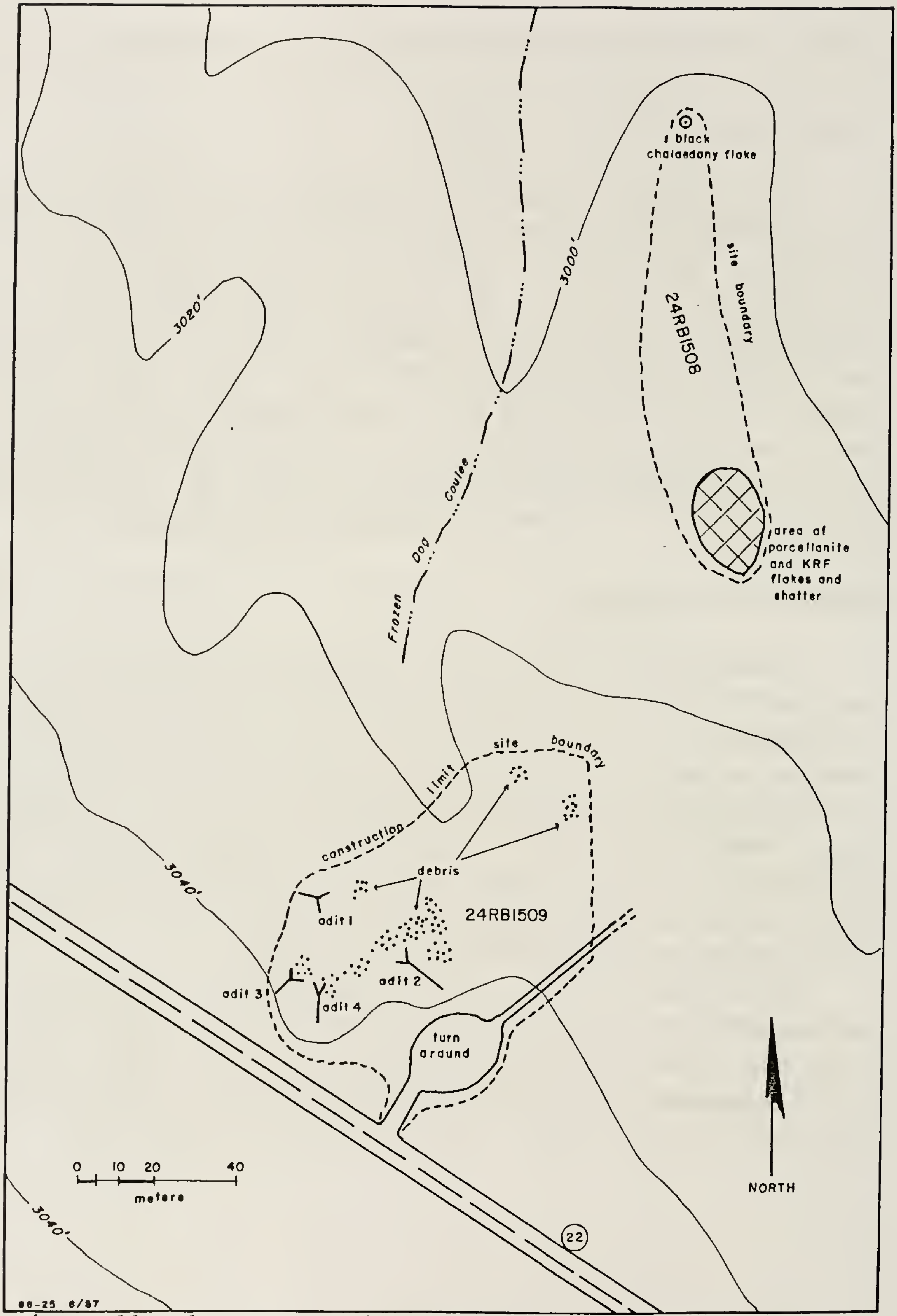


Figure 11. Plan Map of Site 24RB1509 (coal mine) and Site 24RB1508 (lithic scatter).

Figure 12. Overview of Site 24RB1509 to the south-southwest of the mine area, showing trash.

Twenty to 25 families bought coal from the Rock Spring mine, at a price of $1.00 per ton. The needs of most families were relatively small, the fuel being used primarily for heating homes. A family with a wagon could get two and a half tons of coal in a single load -- four tons if they owned a truck. The mine was conveniently located adjacent to the Miles City-Jordan "stage" road, a fact which may have attracted more people than the average wagon mine.

During Fadhl's tenure at the mine, he never knew who owned the surface rights of the property or the rights to the coal. His mine was never inspected, nor did he pay a tax on the extracted coal (Fadhl 1987). Land status records housed at the Office of the Clerk and Recorder at the Rosebud County Courthouse in Forsyth indicate that this section is part of the land granted to the Northern Pacific Railway Company. In 1918, the Northern Pacific sold the section to the Northwestern Land Holding

Company. That company held title to the property until 1936, at which time it was sold for nonpayment of taxes. It appears that during the years that local residents mined coal from the area, there was no resident landowner, and thus no one complained about Fadhl's coal mining operation.

Evaluation and Recommendation

This site does not appear to meet the criteria of eligibility for nomination to the National Register of Historic Places. It is not associated with specific people or events of significance to the local community, the state, or the region. Also, although the site is associated with the practice of small-scale exploitation of coal to supply the home heating needs of local farmers and ranchers, the lack of integrity at the site limits its ability to represent such activities. Additional work at the site is unlikely to yield significant information regarding the operation of the mine.

The proposed reclamation project will include excavation and filling of the remaining underground mine workings, and regrading of the slope above the portion of the mine that was stripped for coal. Also, the drainage in the stripped area will be reconstructed. Any trash in the vicinity of the mine will be removed. All disturbed areas will then be covered with a uniform layer of topsoil, reseeded, and mulched. We recommend that no further cultural resource work be conducted at this site prior to reclamation.

4.2.2 Prehistoric Lithic Scatter (Site 24RB1508)

Description of the Physical Remains

As stated above, a prehistoric lithic scatter was located adjacent to the edge of the construction boundary of the reclamation project (see Figure 11). The site is located on a

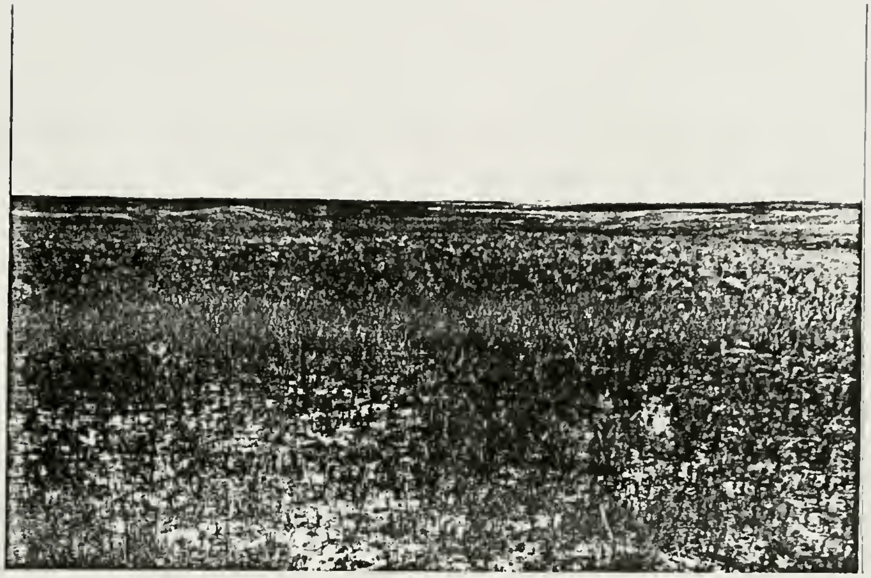


Figure 13. Overview to the north of the area containing Site 24RB1508, a lithic scatter near the Rock Springs coal mine.

level, grassy terrace remnant above a tributary of Frozen Dog Coulee (Figure 13, above). Artifacts observed at the site include several grey porcellanite pieces (a large cortical flake, a large interior flake with several flake scars along one edge, and three blocky pieces with cortex that may represent tested and discarded cores); one large, blocky piece of maroon porcellanite with cortex on one side and several flake scars (possibly a tested core); and one small interior flake of a heavily patinated material similar to Knife River Flint. The outlying flake is an interior flake of a black and clear banded material, probably chalcedony.

Given the limited amount of material observed at the site, it is difficult to determine the character of the prehistoric activities that took place at this locality. Porcellanite, the predominant material at this site, occurs naturally in cobble form in the gravels of old Yellowstone River terraces and also in bedrock outcrops throughout the project area. The presence of the cortical porcellanite flakes and cores indicates either lithic reduction or testing of material for use in tool manufacture. No features were noted in the surface distribution of cultural material that would indicate any type of occupation other than a transitory one.

Evaluation and Recommendation

The significance of this site is undetermined. Although the cultural material observed thus far does not appear to have the potential to contribute significant information concerning the prehistory of the area, subsurface testing may reveal additional, significant cultural deposits with good depositional integrity.

The construction boundary included in the current reclamation plan is located south of the southwest boundary of the prehistoric site; thus, reclamation should not affect the prehistoric site. If changes in the preliminary reclamation plan extend the construction boundary into the area of the prehistoric site, the site will have to be tested prior to any ground-disturbing activity within the area. As the plan now stands, it does not appear that reclamation will affect the prehistoric site.

4.3 The Golden Messenger Reclamation Area (Lewis & Clark County)

This project includes a single reclamation area -- the remains of the Golden Messenger Mine. The mine is one of several located within what is known historically as the York-Confederate Gulch unorganized mining district. The district is located on the western edge of the Big Belt Mountains, northeast of the City of Helena (Figure 14).

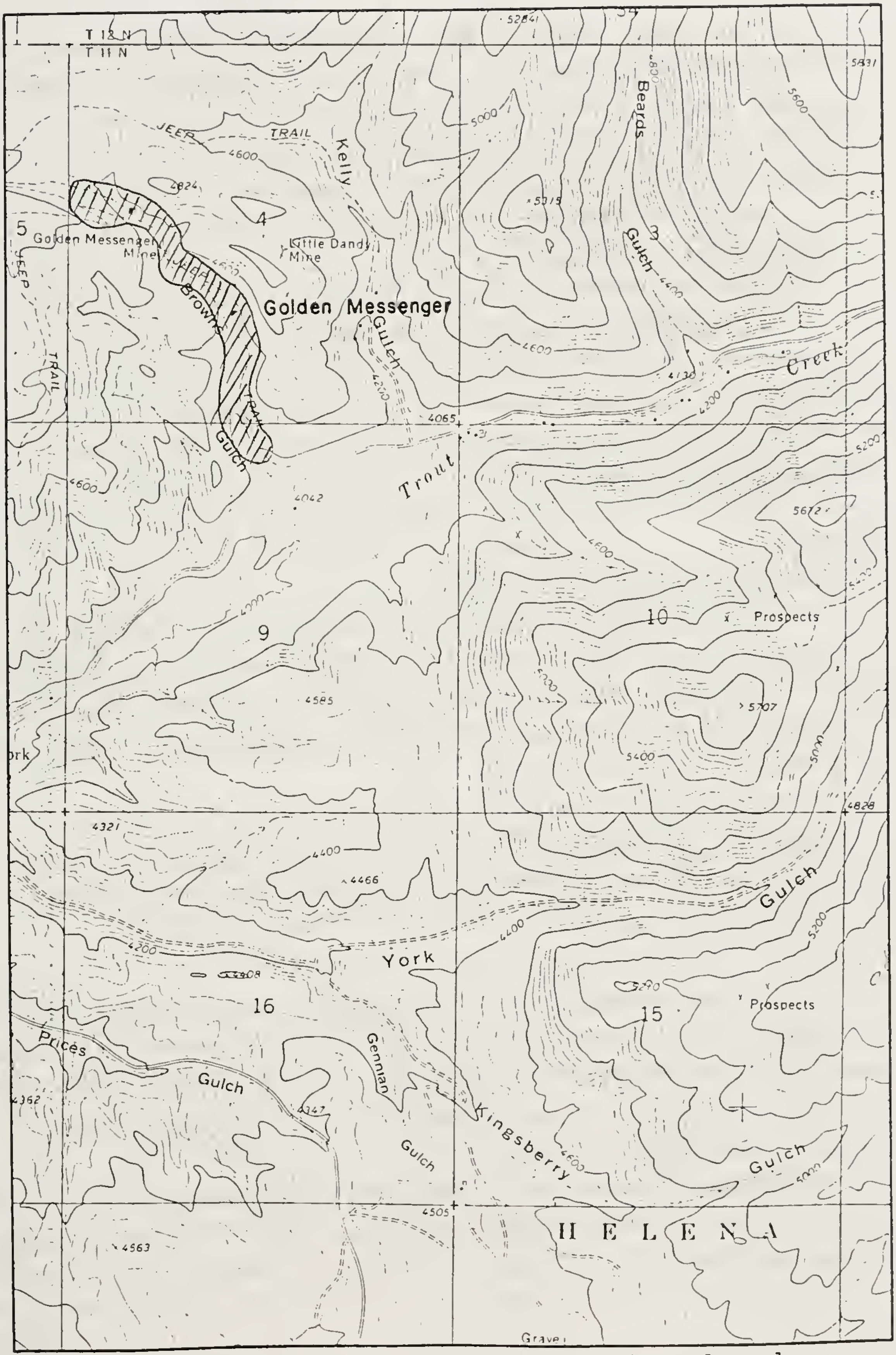


Figure 14. Copy of USGS Canyon Ferry 7.5' Quadrangle showing location of Golden Messenger project area.

The greater project area is characterized by steep-sided, heavily timbered ridges and intermittent drainages. Trout Creek, the major perennial drainage in the immediate project vicinity, flows southwest to join the Missouri River. The Trout Creek canyon is narrow and steep-sided for the most part, but there are a few open areas near the confluences of the main stream with its intermittent tributaries.

Pardee and Schrader provide the most complete overview of mining within the York/Confederate Gulch area in their 1933 publication entitled "Metalliferous Deposits of the Greater Helena Mining Region, Montana." The progression of mining development at York parallels that of other areas of western Montana. The earliest production from the area resulted from exploitation of placer gold deposits, the proceeds of which were estimated to have been about $17,500,000 for the entire region (Pardee and Schrader 1933:120).

The earliest lode mines were located soon after the placer claims but, as in other areas, they operated only in a limited capacity. The first lode mine to be developed was the Old Amber or Golden Cloud mine located in York Gulch, south of Trout Creek and the current project area.

> A small mill to work ore from this deposit is said to have been built at the mouth of Rattlesnake Gulch before 1870. About 1899 a larger mill was built, and the mine is said to have been profitably operated for the next four or five years (Pardee and Schrader 1933:121).

The Golden Messenger mine is located on the north side of Trout Creek in an area dissected by a series of quartz diorite dikes that intrude into the surrounding Belt series rock. The gold-bearing lodes are associated with these dikes (Pardee and Schrader 1933:132).

The western-most dike is referred to by Pardee and Schrader as the Golden Messenger dike, presumably after the most prominent mine in the area at the time of their field work in 1927 and

1928. The authors describe the various lodes and their development as follows:

> Outcrops of gold-bearing quartz, mainly in shale, along a dike in the ridges north of Trout Creek early attracted attention. The richest of these, the Little Dandy, was located about 1883, the discoverer it is said, being led to the deposit by a piece of float quartz from which he pounded out $8 in gold. Many of the numerous other veins along the dike were developed, the ore from all of them being hauled or packed down to Trout Creek or some other stream, where it was worked in small mills and arrastres. Between 1895 and 1900 the most active mines along the dike were the Little Dandy and Golden Charm, both operated by John A. Rowand, who milled the ore at a plant on Trout Creek below the Little Dandy. Other mines which were worked about this time but whose history is not other wise known include the Gold Bug, Gold Bar, Gold Speck, Last Rose of Summer, and Mollie Muck-a-Chuch. All have apparently been abandoned for a long time.
>
> Since about 1900 the mines along the dike have been idle or practically idle except the Golden Messenger. The rather remarkable deposit at this mine was discovered in the course of development work along one of the many small quartz veins that cross from the shale into the dike. In contrast to the narrow and rich veins previously discovered it proved to be a low-grade body of large dimensions (Pardee and Schrader 1933:121).

The gold-bearing veins of the Golden Messenger dike "belong to the rather uncommon class of deposits called ladder veins" (Pardee and Schrader 1933:140). Ladder veins are defined by Fay (1920:384) as "[t]ransverse fractures formed by the cooling of an eruptive dike and which have later become filled with ore." Loraine (1937:4) describes the veins as comprising "a rather closely spaced series that cuts across the strike of the dike so as to suggest the rungs of a ladder."

As of 1933, Pardee and Schrader estimate that the total production for all lode mines accessing the Golden Messenger dike to be about $350,000 to 500,000 -- over half of the estimate for the entire York/Confederate Gulch district. The Golden Messenger Mine represents the most long-lived mine in the York district, although it appears that profitable operation of the mine was probably limited to the last ten years of operation, from about 1933 to 1942.

4.3.1 The Golden Messenger Mine (Site 24LC872)

Description of the Physical Remains

The features and structures present at the Golden Messenger Mine are representative of both development work (the actual extraction of ore) and milling (the extraction of gold from the ore). Figure 15 shows the locations of features in relation to each other and the approximate boundaries of the major patented claims controlled under the name of the Golden Messenger Mine. (The claim boundaries shown are only approximate, having been plotted with the aid of information in the notes of the original Mineral Survey.)

Features located within the north part of the site area are directly related to development work (ore extraction), and include adits, open stopes, rock dumps and areas of subsidence. [Note: the term "stope" is used in its most general sense, to mean any subterranean excavation of ore "except that which is incidentally performed in sinking shafts, driving levels, etc., for the purpose of opening the mine" (Fay 1920:652).]

Feature 1, is an opening into the bedrock, with the entry partially filled (Figure 16). This may be the opening to a stope or a tunnel. Feature 2 consists of two areas of subsidence located adjacent to each other (Figures 17 and 18). Timber sets are visible in the northernmost subsidence area, and appear to have consisted of large, upright beams with log cross pieces. This feature (the two subsidence areas) is located in the general vicinity of what was known historically as Tunnel 2, one of the major entries into the lode.

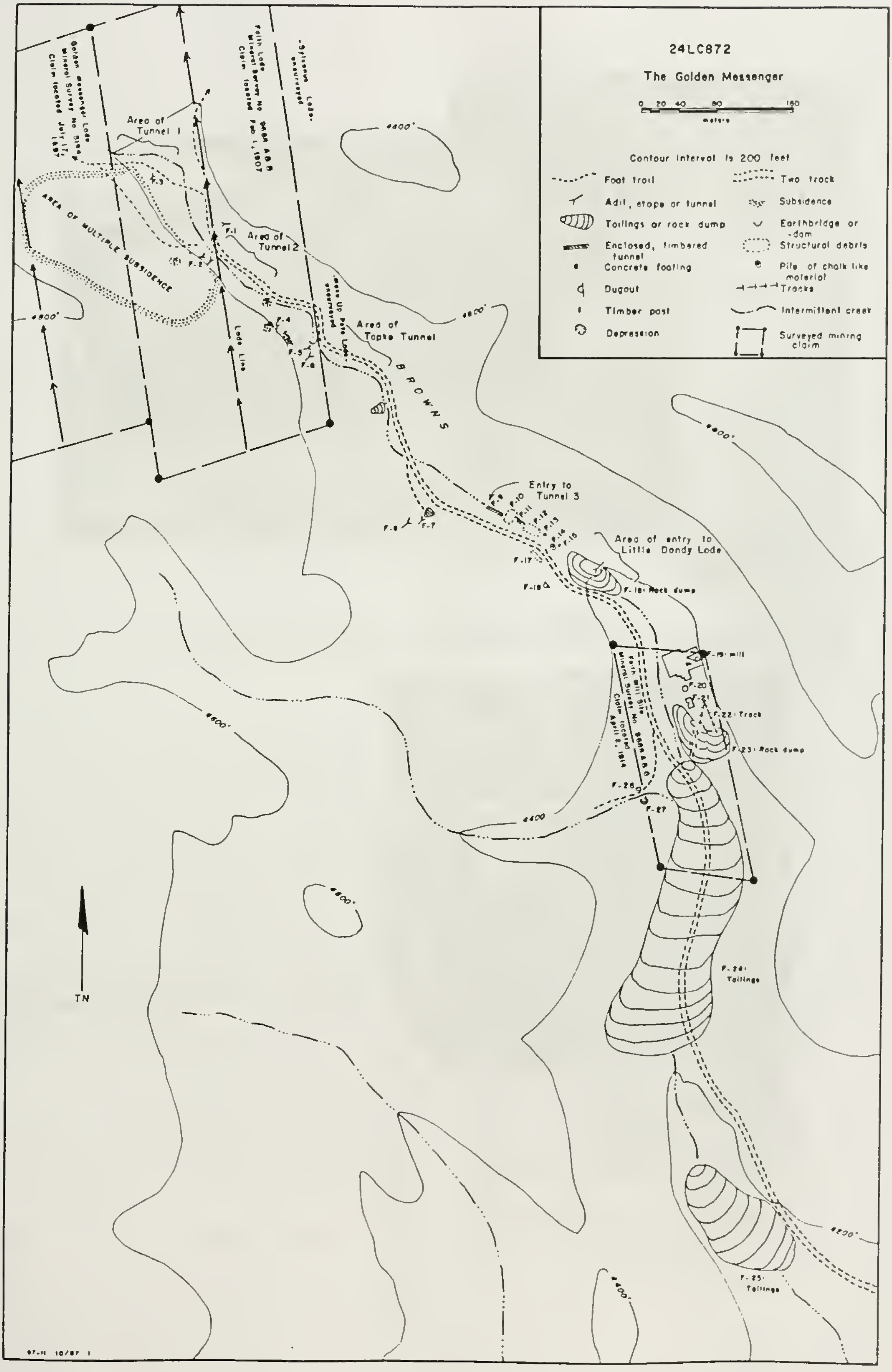


Figure 15. Plan Map of Site 24LC872.

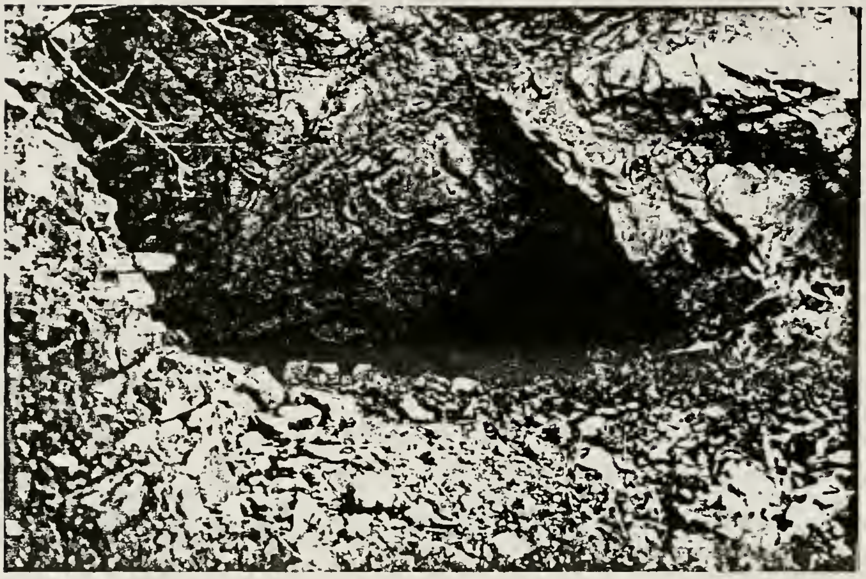


Figure 16. Detail of Feature 1 at Site 24LC872.

Figure 17. Overview of south part of Feature 2 at Site 24LC872.

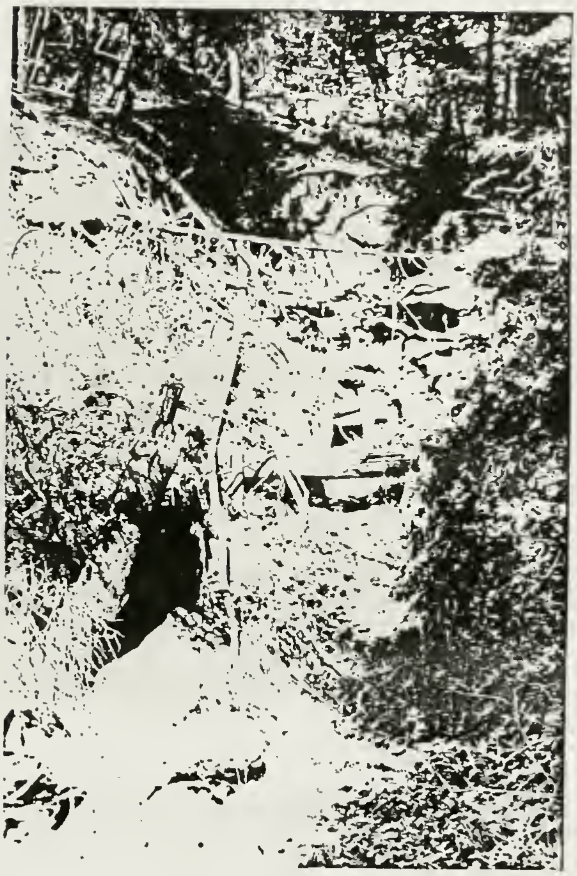


Figure 18. Overview of north part of Feature 2 at Site 24LC872. Note timber sets.

Feature 3 is a tunnel entrance located northwest of Features 1 and 2 and adjacent to the west side of the jeep trail in the bottom of the gulch. Currently there are no timber sets, the ceiling being formed by the bedrock (Figure 19). This feature is located in the general vicinity of Tunnel 1, another of the main entries into the mine.

Reference to the site map (see Figure 15) will show an "area of multiple subsidence" indicated by a stippled area. Within the indicated boundary is a very confusing complex of open cuts and subsidence areas, and at least one open stope (Figures 20 and 21). All of these are located in the vicinity of what Pardee and Schrader (1933:Plate 18) identify as the Golden Messenger mineralized zone, and reflect extensive ore extraction.

Feature 4 is located southeast of Features 1 and 2, and appears to be an open stope (Figure 22). A piece of timber

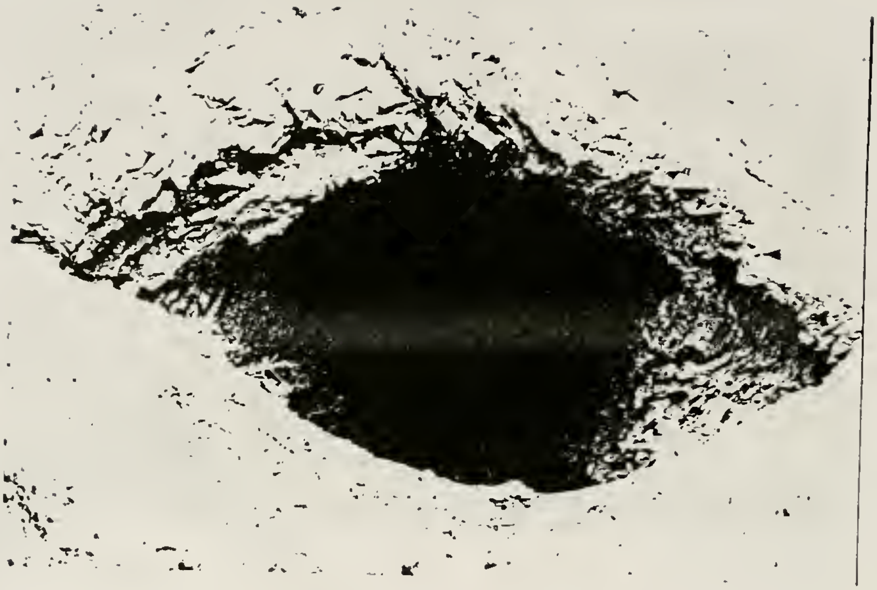


Figure 19. Detail of Feature 3 at Site 24LC872.

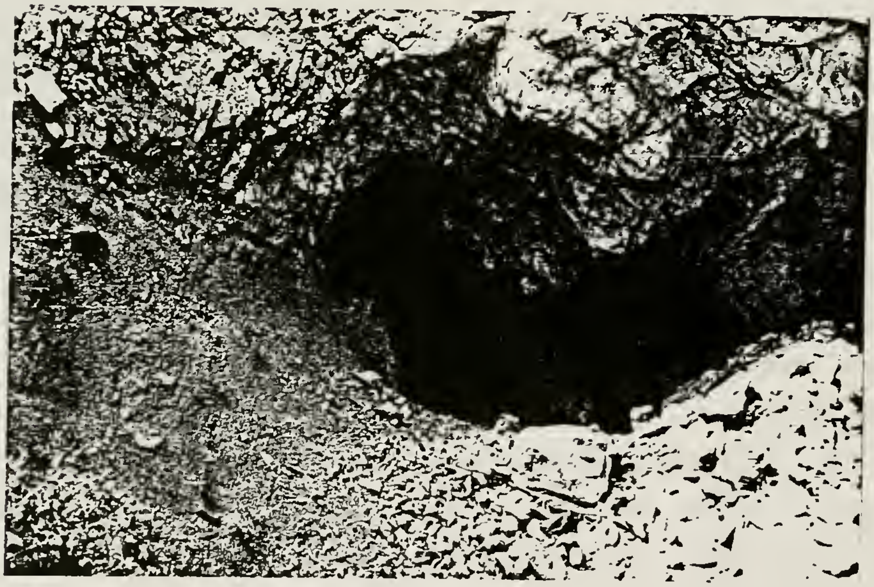


Figure 20. Open stope in area of multiple subsidence at Site 24LC872.

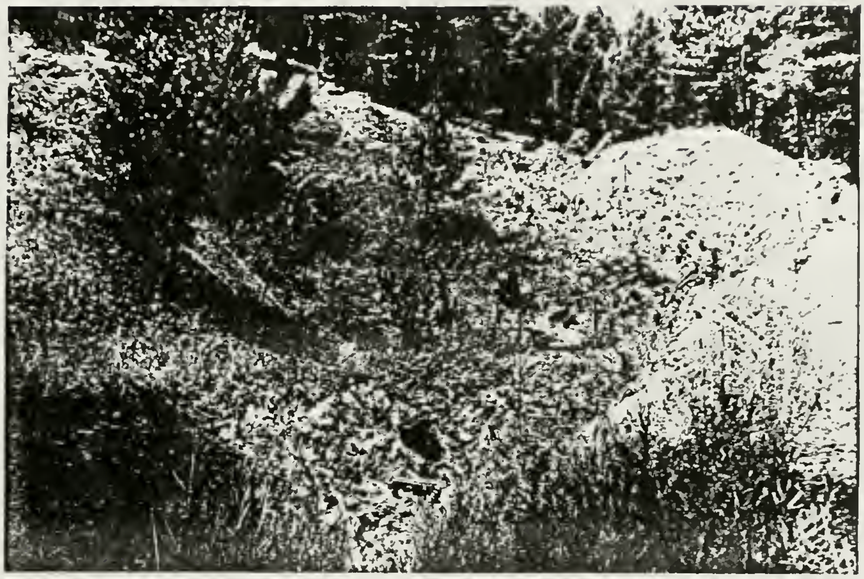


Figure 21. Cut in area of multiple subsidence at Site 24LC872.

Figure 22. Detail of Feature 4, an open stope at Site 24LC872.

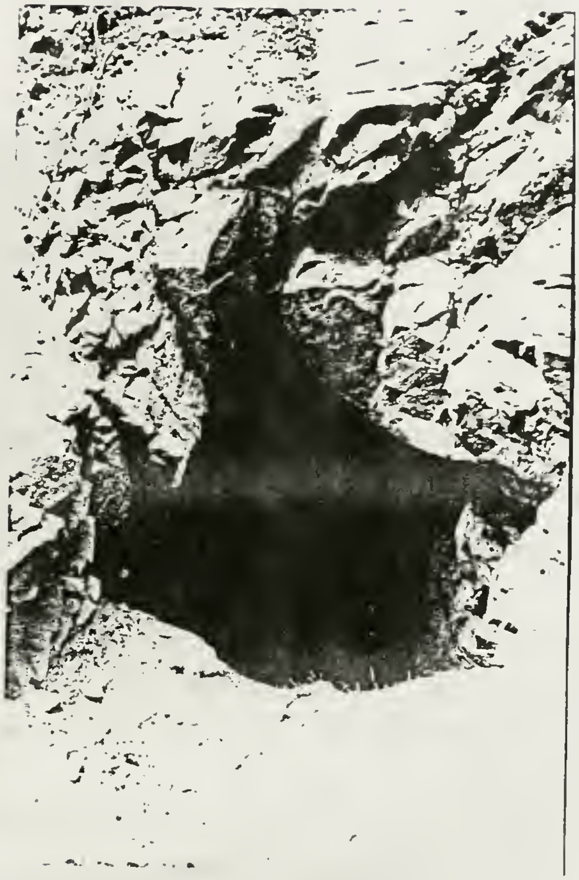
bracing is still visible inside, and there is a small subsidence area located on the west side, possibly indicating the extent of the original excavation. Features 5 and 6 are openings into bedrock, which also may represent areas of ore removal (Figure 23). The opening to Feature 6 is partially blocked by waste material. Both of these openings are located in the vicinity of what was known historically as the Topke Tunnel.

Features 7 and 8 are located relatively close to each other, about 160 meters southeast of Feature 6. Feature 7 appears to be an adit. The remains of interior timbering and small-diameter poles for lining the walls can be seen just inside this feature (Figure 24). A rail, presumably for a tramway, also protrudes from the mouth of this feature, and a fairly large waste dump is located directly in front of the opening. Feature 8 consists of a relatively shallow depression in the side slope (Figure 25). A small waste dump, opposite, may indicate that this was another adit or stope.

Feature 9 is an enclosed entry-way to a tunnel (Figure 26), which in elevation and orientation corresponds to the No. 3 level tunnel, driven in about 1913 (Pardee and Schrader 1933:Plate 18). The No. 3 tunnel represents the lowest level at the mine, and served as the major haul way for ores mined from overlying veins. The pattern of mine openings currently visible, as described above, is consistent with a description of development work at the mine written in 1937:

> The mine is developed by a number of short adit levels and other openings near the surface; by No. 2 tunnel level, which cuts the ore bodies about 60 to 80 feet vertically below the surface; and by No.3 tunnel level, which is 150 feet vertically below No. 2. Because of the number and size of the veins available above No. 3 level, no attempt has yet been made at deeper exploration (Loraine 1937:5).

Figure 23. Detail of Feature 4, an open stope at Site 24LC872.



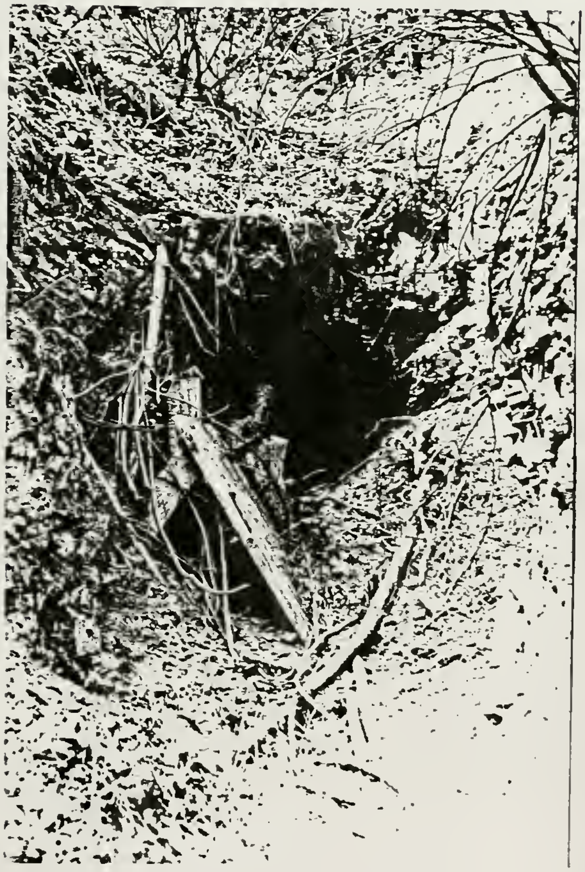


Figure 24. Detail of Feature 7 at Site 24LC872.

Figure 25. Overview of Feature 8 at Site 24LC872.

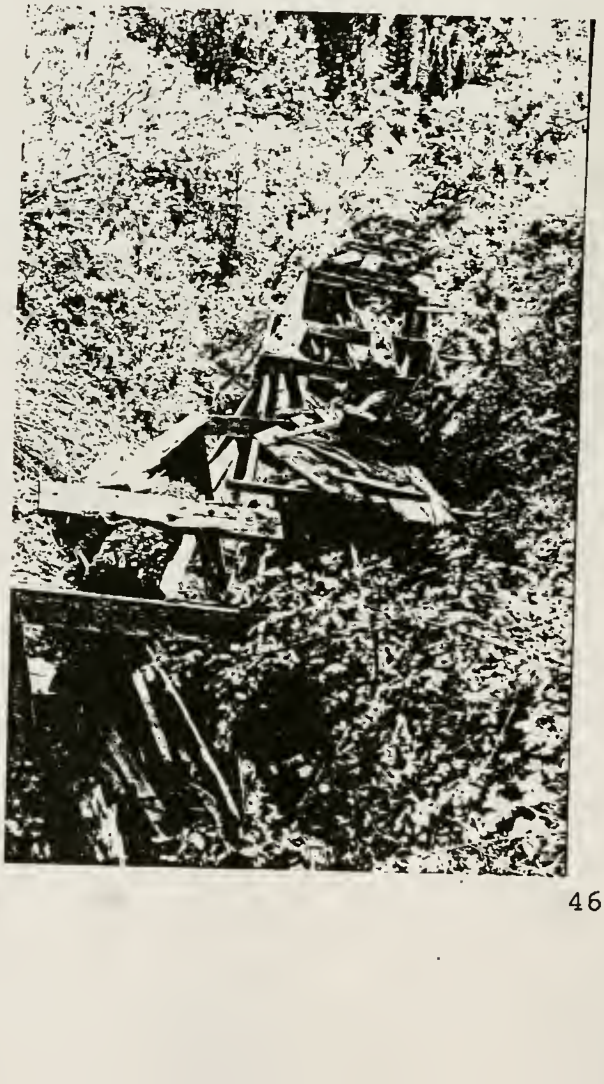


Figure 26. Overview, looking north of Feature 9, the entry to Tunnel No. 3 at Site 24LC872.

A number of features are located outside the entryway to the No. 3 tunnel. Feature 10 is a pile of lumber and wood debris, which may represent the remains of a separate structure or simply the piled debris resulting from dismantling other structures associated with features. Feature 11 is a concrete footing, perhaps built to accommodate machinery, which then may have been enclosed with some type of structure (Figure 27). Feature 12 is another pile of boards and debris (Figure 28); Feature 13 is a small, square, concrete footing (Figure 29); Feature 14 is a pile of white, chalk-like material; and Feature 15 is another rectangular concrete footing with three beveled edges (Figure 30).

Immediately down slope from these features is a large rock dump (Feature 16, Figure 31), which appears to be the residue of mining from the Faith, Golden Messenger, and Little Dandy lodes. The top of this rock dump lies at the level of the entry to No. 3 tunnel, which, as stated above, served as the main haulway for both waste rock and ore. A depression in the side of the hill immediately above the rock dump may mark the entry to the tunnel that accessed the Little Dandy lode (as indicated in a map of the mine found in Pardee and Schrader's 1933 work). Features 9 through 16 all lie on the east side of the main access road to the site, which parallels the west edge of the drainage course.

Features 17 and 18 lie on the west side of the main access road, just above the large rock dump. Feature 17 consists of a large pile of logs and boards, some of which have round wire nails (Figure 32). Feature 18 is a dugout, built into the side hill with the facade facing the access road. This feature is lined and roofed with wooden planks, and a door was formerly located in the northeast elevation (Figure 33).

Feature 19, the most prominent feature at the site, is the remains of the mill building (Figure 34). This structure originally was built in about 1913, and was converted by

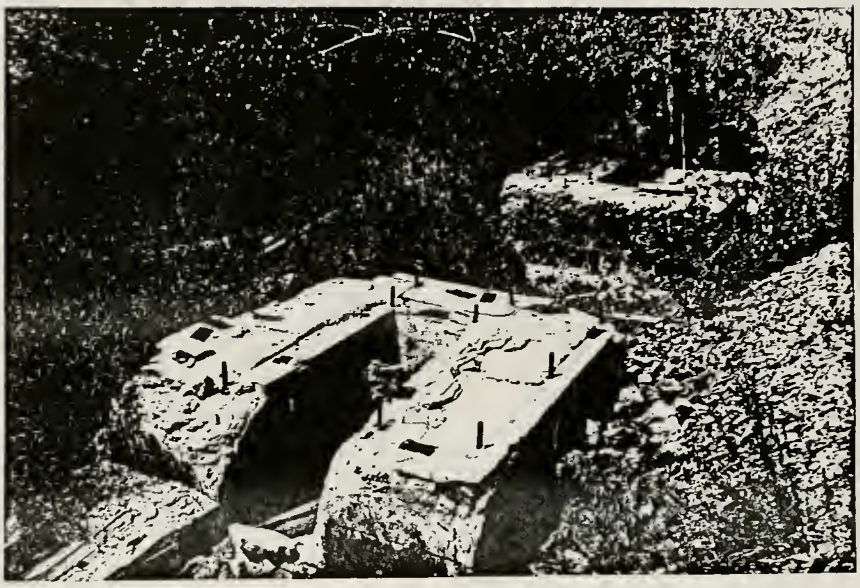


Figure 27. Overview of Feature 11, a concrete footing at Site 24LC872.

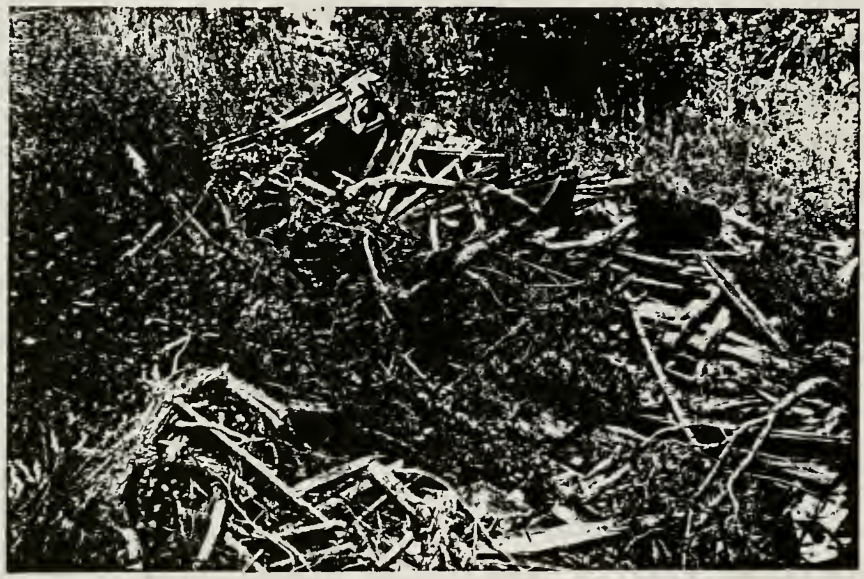


Figure 28. Feature 12, a pile of boards and debris at Site 24LC872.

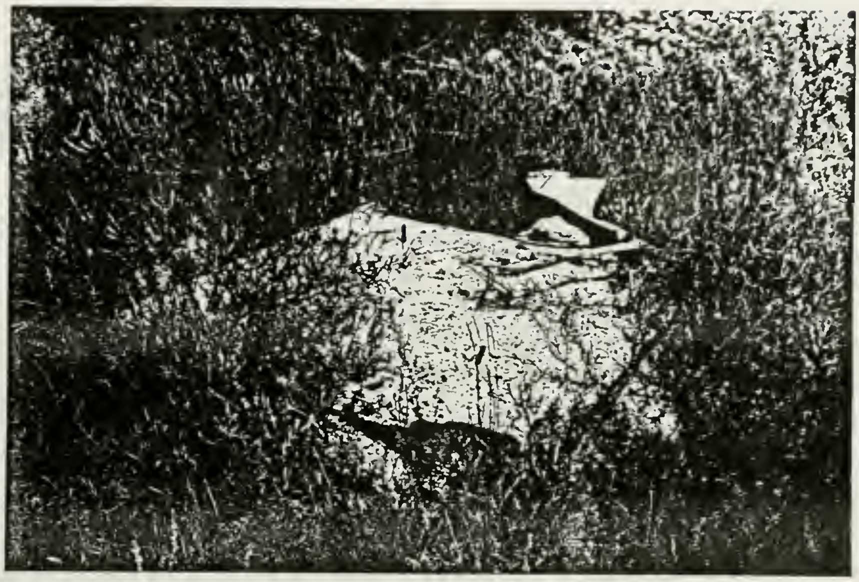


Figure 29. Feature 13, a small, square, concrete footing at Site 24LC872.

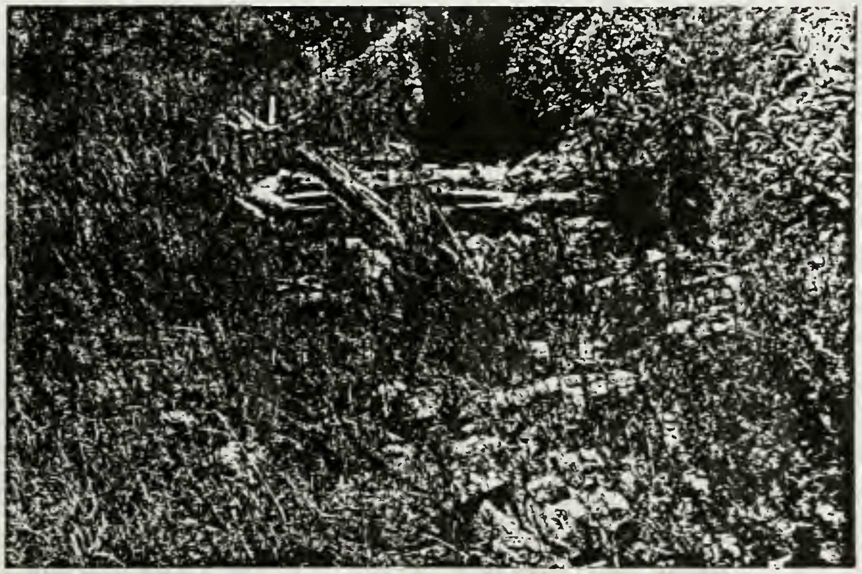


Figure 30. Feature 15, a small concrete footing at Site 24LC872.

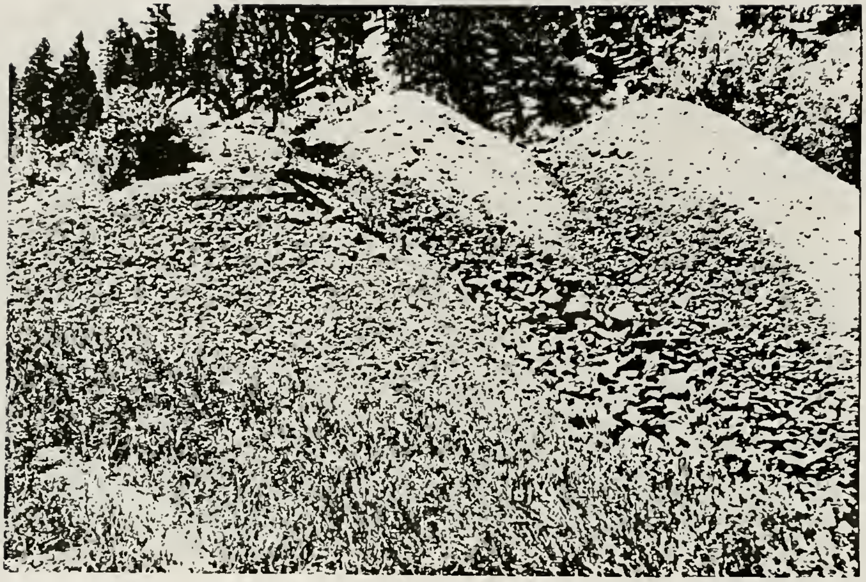


Figure 31. Looking northeast towards the end of Feature 16, a rock dump at Site 24LC872.

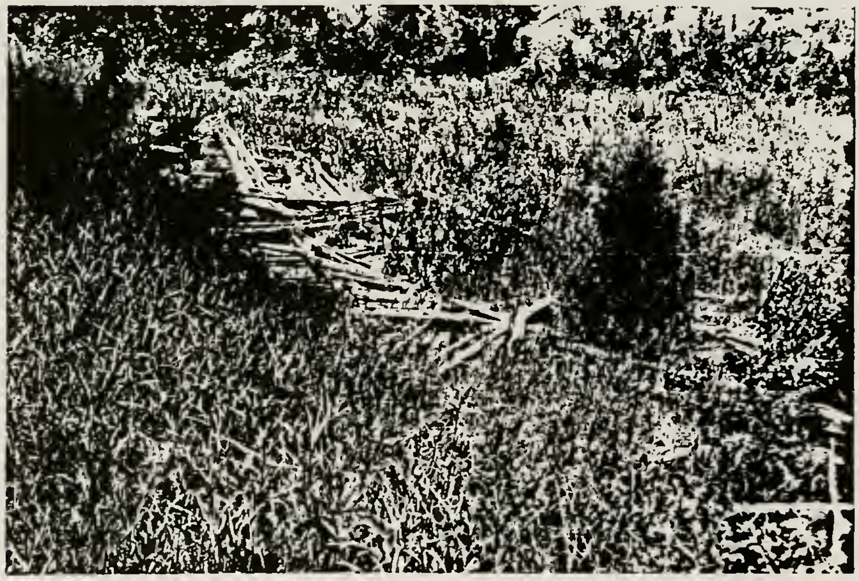


Figure 32. Overview of Feature 17, a possible collapsed structure at Site 24LC872.

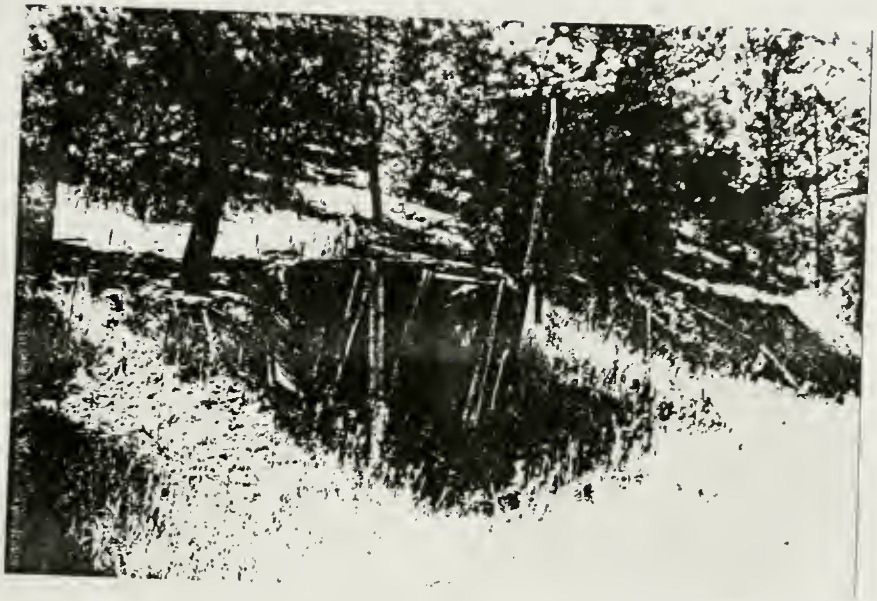


Figure 33. Overview of Feature 18, a dugout at Site 24LC872.

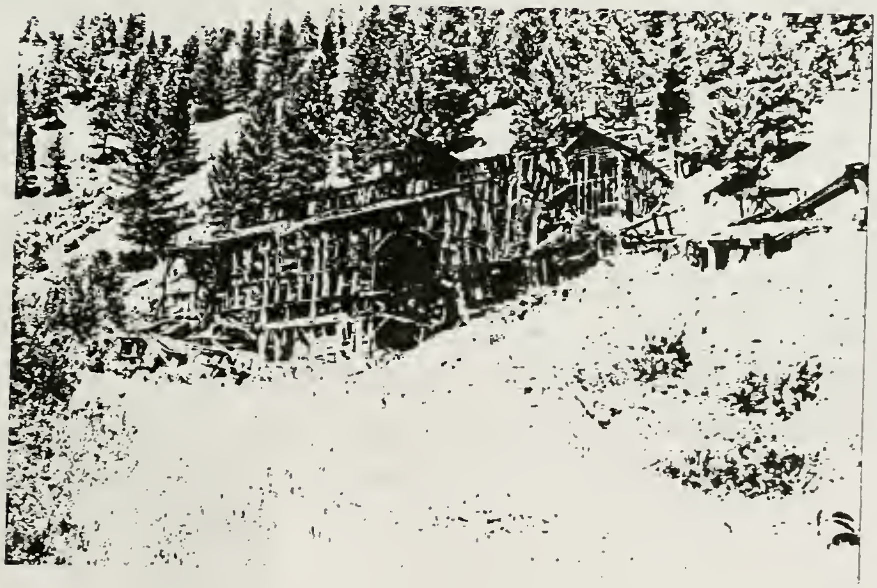


Figure 34. Overview looking north of Feature 19, the remains of a mill at Site 24LC872.

subsequent operators in the early 1930s (Pardee and Schrader 1933:146; Loraine 1937:11). The mill is built at several different levels in the hillside, reflecting the use of gravity system in treating ore (Figure 35). The mill building contained all the equipment used to store and crush the ore, grind it in the presence of cyanide solution, separate the pregnant (gold-bearing) solution from the remaining material, retrieve the barren cyanide solution through a series of filters, and flush the "cake" (solid residue left in the filters) to the tailings pond -- a system that may be described as a close circuit grinding (Loraine 1937).

The entire mill building was once enclosed with board siding, but most of this has been removed or has fallen from the exterior walls, leaving the interior exposed to the elements (see Figures 34 and 35). Although the exterior of the mill building is in poor condition, the last operators of the mine in the 1940s left much of the equipment intact, and one is still able to relate some of the components to their functions. Figure 36 shows a "Portland filter" located at the bottom level of the mill.

Feature 20 is located outside the mill building, but represents a final stage in the milling process. This is the remains of a "thickener" (Figure 37). This circular feature, which is constructed of wood and concrete, is partially buried into the steep side slope slightly below the lowest level of the mill (Figure 38). Some type of track or feed line appears to have led from the mill to a large funnel at the upper level of this feature. A large metal cog appears to have turned an interior metal shaft that probably turned a paddle inside the thickener. There is an opening in the downslope side of the feature (Figure 39).

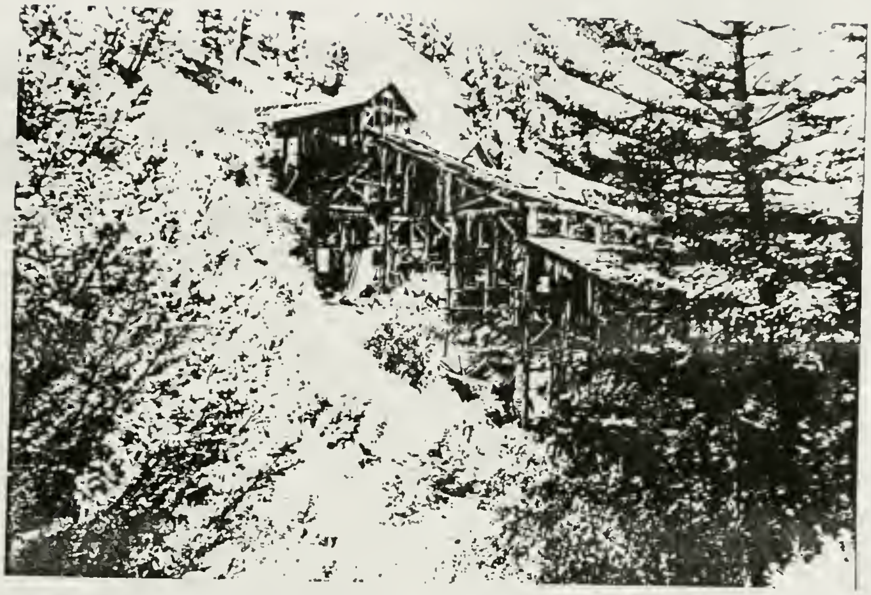


Figure 35. Overview to south of Feature 19 at Site 24LC872, a hill showing different levels along the hillside.

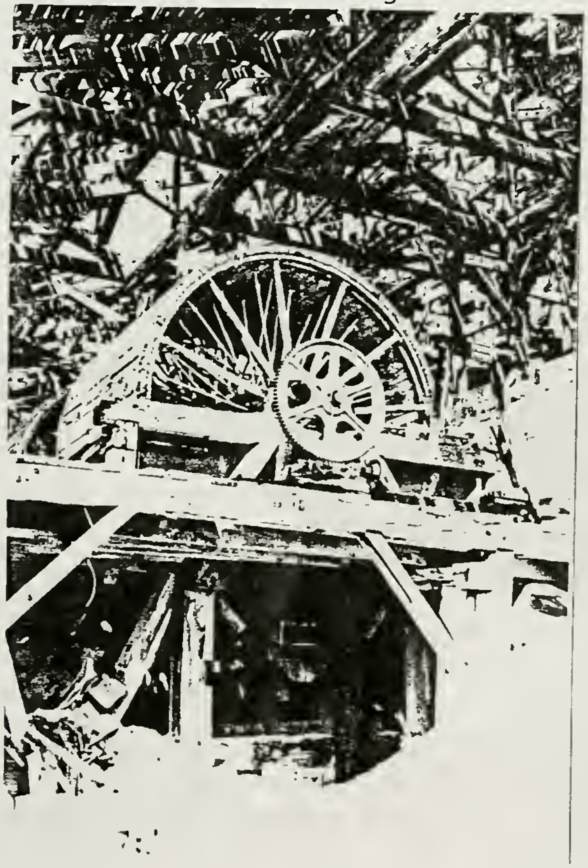


Figure 36. Detail of Portland filter located at the bottom of the mill at Site 24LC872.

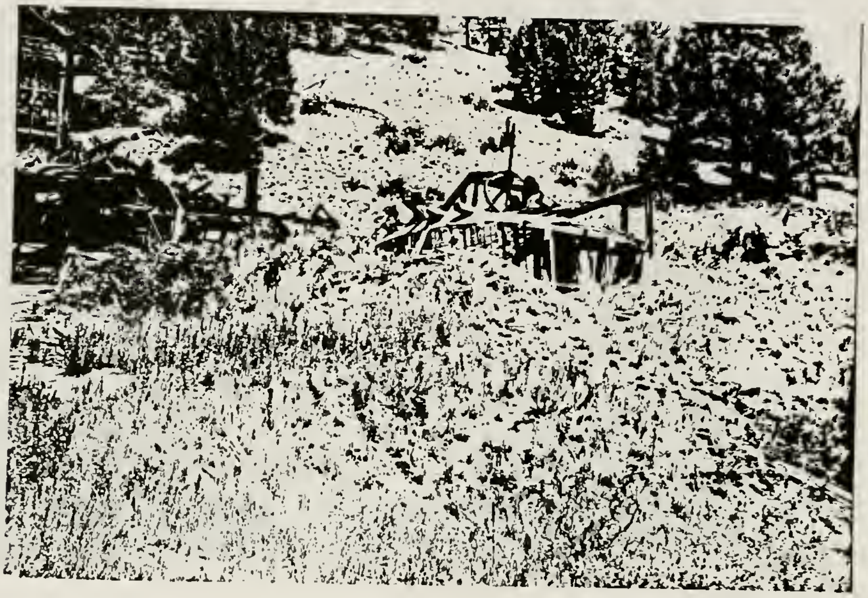


Figure 37. Feature 20 at Site 24LC872, the remains of a thickener, located outside but adjacent to the mill.

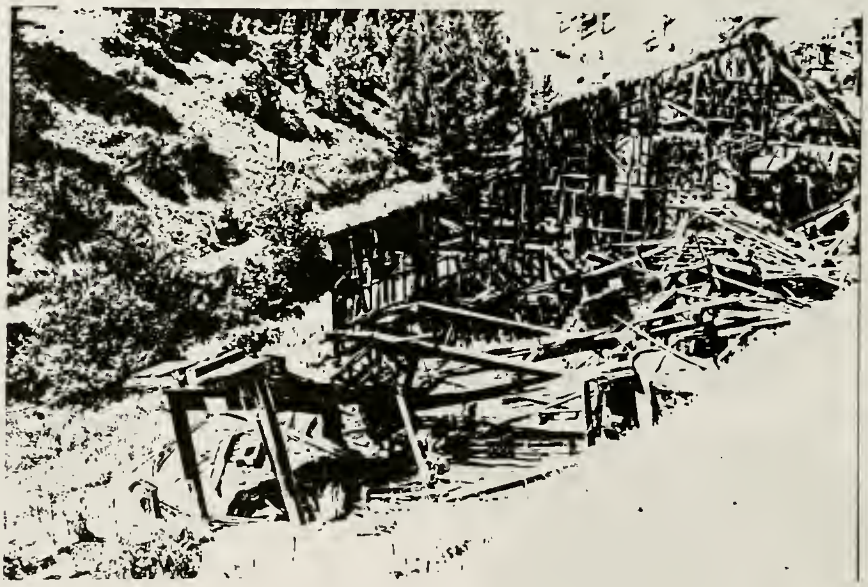
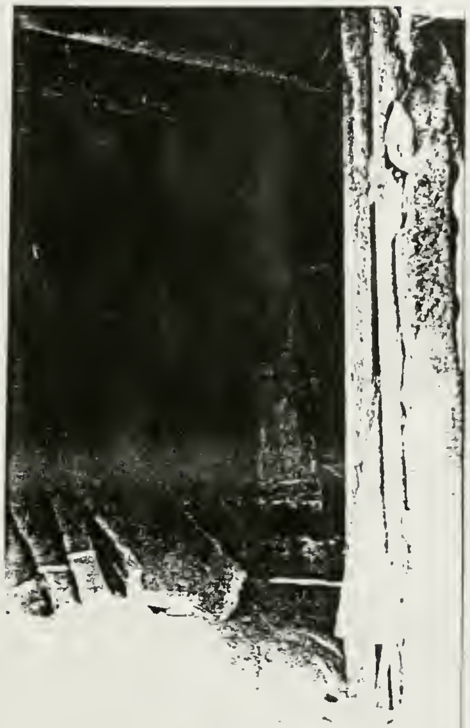


Figure 38. Overview of Feature 19 (mill) and Feature 20 (thickener) at Site 24LC872. The thickener is located in the lower left-hand corner of the photo.

Figure 39. Opening in the down slope side of thickener at Site 24LC872.



According to a flow chart provided by Loraine (1937), thickeners were used at two stages of the milling process at the Golden Messenger Mine. Feature 20 was used towards the end of the process, after the gold-bearing solution had been removed. The pulp was fed into the thickener, where the heavier particles of crushed waste settled to the bottom. The lighter, barren cyanide solution or the "overflow" was returned to the milling system for re-use. A paddle moved slowly around the interior of the thickener to prevent the pulp from solidifying around the bottom and sides. The pulp was transferred to filters that removed still more liquid or "filtrate," and the solid material or "cake" was dissolved in water for transportation to the tailings pond.

Feature 21 is a rectangular log crib with earth and rubble fill. It lies south of the thickener, and may have been used as a platform. Feature 22 appears to be the bed for a tramway that leads from behind this platform to the edge of Feature 23, a rock dump (Figure 40). Segments of a shallow trough formed by nailing two boards together are scattered along the steep side slope of the edge of the rock dump and the edge of the tailings (Figure 41). This may be the remains of the "launder," a device used to transport the solution of "cake" and water to the tailings pond (Loraine 1937). Two large accumulations of tailings (Features 24 and 25) are found in the drainage bottom below the mill (Figure 42). (The current access road bisects the upper tailings.)

The two remaining features are located in a shallow draw that opens into Brown's Gulch. Feature 26 consists of a frame for a structure, built by nailing small-diameter poles together. Currently there is no covering on this feature, but it may have been covered by canvas at one time (Figure 43). Associated debris includes a metal bucket, and a rectangular metal "box." The box was assembled with various pieces of metal, including the recycled parts of containers that once held cyanide. The words "NET 200. AERO BRAND CYANIDE, AMERICAN CYANAMID COMPANY, MADE IN CANADA" are stenciled on two sheets of metal incorporated into the "box."

Feature 27 is an excavated area in the side slope opposite Feature 26. Two sections of stacked stone at the outside edges, probably represent the foundation for an exterior wall (Figure 44). A few pieces of milled lumber are associated with this feature indicating that it may have had a board roof or walls.

Historical Development

The pattern of development at the Golden Messenger Mine is typical of many precious metal mines in the Helena area. The property referred to as the Golden Messenger Mine actually controlled several mining properties, the profitable exploitation of which required, at various times, large expenditures of capital in order to take advantage of technical developments.

Figure 40. Overview of slope with possible remains of launder at Site 24LC872.

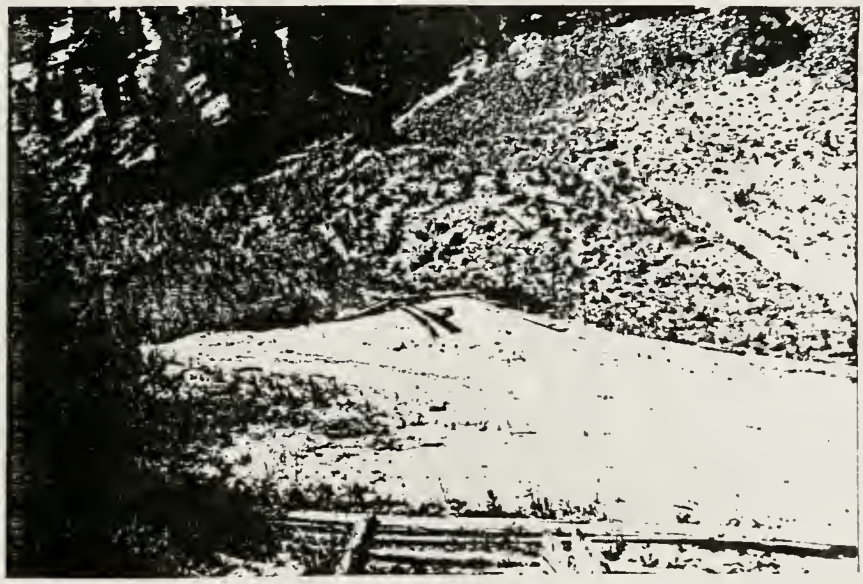


Figure 41. Overview of rock bed for track leading to edge of rock dump at Site 24LC872.

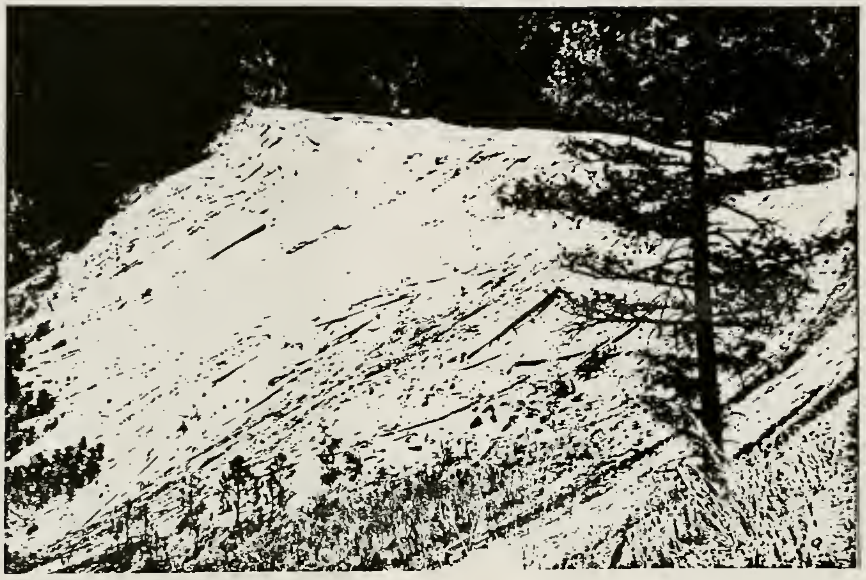


Figure 42. Overview of lower level of tailings at Site 24LC872.

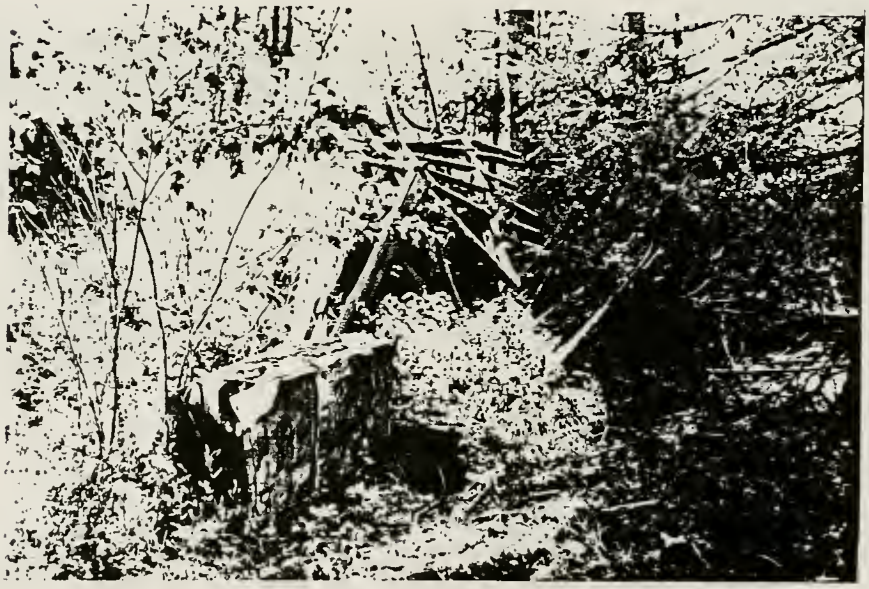


Figure 43. Overview looking west of Feature 26, a pole frame at Site 24LC872.

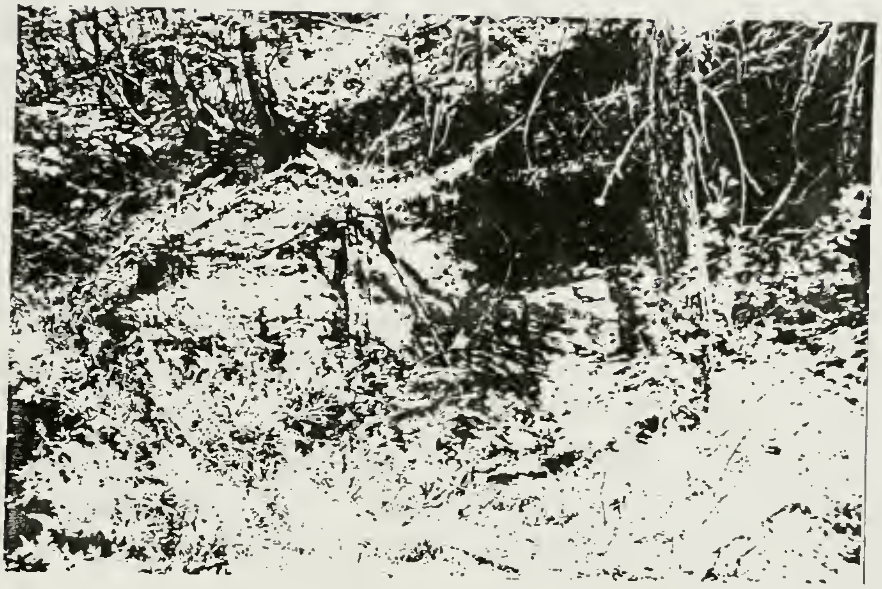


Figure 44. Overview looking to south of Feature 27, remains of dugout structure at Site 24LC872.

The Golden Messenger mine was relatively long-lived when compared to other mines operated in the York mining district. The first mines opened in the York district accessed rich, but unfortunately small, veins of ore. The ore bodies in the Golden Messenger and Faith lodes apparently were not rich in comparison to the first veins exploited in the Little Dandy lode. However, the extensive nature of the ore deposit in the Golden Messenger, coupled with technological developments in treating the ore, permitted profitable operation of the mine only towards the end of its operational life.

The mine known as the Golden Messenger actually consists of a number of patented and unpatented claims, all of which access the Golden Messenger dike. The patented claims include the Little Dandy lode and mill site, the Golden Messenger lode, and the Faith lode and mill site. Of the three major lodes included in the Golden Messenger Mine, the Little Dandy appears to have been the earliest to be developed. According to Pardee and Schrader (1933:121), the Little Dandy mine was located in about 1883. The mineral survey for the Little Dandy lode and the Little Dandy mill site did not take place until 1897 (the same year as the survey for the Golden Messenger lode) and the survey plat lists Henry Sieben as the claimant. Whether or not Seiben was responsible for the early development of the Little Dandy in the 1880s is unknown. However, it appears that some individual or company mined ore from the Little Dandy lode and milled it at a quartz mill on Trout Creek prior to 1897. The mineral survey plat for the Little Dandy shows a 10-stamp mill, office building, and boarding house, valued at $5880.

Apparently, it was not until nearly 1900 that the group of claims that currently constitute the Golden Messenger Mine were gathered under the operation of one company. John and Charles Friederichs, originally of Michigan, are said to have purchased the claims in 1899 (Western Mining World, November 16, 1901; Pardee and Schrader 1933:146). The Friederichs and other partners incorporated under the name of the Columbia Gold Mining and Milling Company, extended development at the Golden Messenger lode, and built a mill and a small cyanide plant on Trout Creek.

> A new strike of a big vein of excellent milling ore has been made in the Golden Messenger claim of the Columbia Gold Mining company's property at York. The pay ore is in places 18 feet in width and assays over 10 feet wide for as far as the drifts have been driven (Western Mining World, September 14, 1901).

The mill built by the Columbia Gold Mining and Milling Company was located on Trout Creek and was described in 1901 as a water-powered mill with "a combination of stamps, concentration and cyanide" (Western Mining World, November 16, 1901).

The mill on Trout Creek burned in 1902, and for the next 11 years operation of the mine appears to have been sporadic, consisting of development work only. In 1903, the Columbia Gold Mining and Milling Company built an electric plant to power the drills used in exploratory work at the Golden Messenger mine:

> If the lead is found to be intact, carrying quantity and values [of gold] at a depth at which the tunnel will cut it the company will erect a 50-stamp mill to take the place of the old mill destroyed last fall (Western Mining World, February 14, 1903).

Apparently, the company did not find the anticipated "quantity and values," since a new mill was not constructed until 1913, and then by the York Mining Company. (The mill built in 1913 is represented at the site by Feature 19.) The York Mining Company also "drove the long crosscut adit known as the Faith tunnel or tunnel 3 and treated a large quantity of the ore by the cyanide process" (Pardee and Schrader 1933:146).

The record is unclear, but it appears that between 1903 and 1907, the Golden Messenger Mine was owned by the Columbia Gold Mining and Milling Company. Lewis and Clark County land transfer records indicate that, in a dispute between the company and one of its officers, John Friederichs, the court decided in favor of Friederichs. The property transferred to Friederichs as the sole owner in December 1907. Pardee and Schrader (1933:146) indicate that between 1902 and 1913, LaCasse Brothers, the French Bar Mining Company, and the York Mining Company operated the mine. LaCasse Brothers, the French Bar Mining Company, and the York Mining Company may all have been lessees.

In February 1919, it appears that John Freiderichs formed a new mining company called the Golden Messenger Mining Company. Lewis and Clark County land transfer records indicate that Friederichs transferred his title to the mining properties to this company, for which he served as president. In 1927, the Golden Messenger Corporation bought the properties from the Golden Messenger Mining Company. (It is not known whether or not Friederichs was involved with the Golden Messenger Corporation.)

In an article describing the mining and milling methods at the Golden Messenger mine, Loraine (1937) indicates that in 1927 and 1928, the Golden Messenger Corporation conducted development work but did not operate the mill. Pardee and Schrader describe the history of the mine to 1928 as follows:

> Although the mine has evidently produced a large quantity of ore, its history so far, like that of many other mines working large low-grade deposits, has been characterized more by financial difficulties than by profits. The chief causes of these difficulties appear to have been uneconomical methods of mining, unsuitable milling processes, and lack of capital. The later milling operations, however, show a decided improvement in gold recovery (Pardee and Schrader 1933:147).

It appears that the mine was idle between 1929 and 1933. However, in December 1933, the Golden Messenger Corporation apparently leased the mine to the United Gold Mines Corporation, which operated it between 1933 and 1938. United Gold Mines Corporation reconditioned the mill originally built in 1913, added the thickener outside the mill building, and conducted an extensive geological study of the ore deposits that enabled more systematic development of the mine. United Gold Mines Corporation employed about 56 men, the majority of whom worked on development. Only 11 men were required to operate the mill and handle the tailings disposal (Loraine 1937).

The mine continued to produce and treat ore until 1942, but exactly who operated the mine between 1938 and 1942 is unclear. For these years, employees of the Golden Messenger Corporation may have been directly responsible for day-to-day operation of the mine. On March 1, 1942, the mine "[c]losed down ... because of the sudden increased cost of labor, which, in the absence of any corresponding increase in the fixed price of gold, rendered continuing production unprofitable" (Reyner and Traverman 1950:52). At the time of closure, the mill employed 70 men.

Production figures cited by Reyner and Traverman (1950:52) indicate that, between 1934 and 1942, 304,936 tons of gold ore were produced and treated at the Golden Messenger Mine. Total proceeds for this eight-year period were $1,801,956.62, or an average of $5.91 per ton.

The remains currently present at the Golden Messenger Mine most clearly reflect operation of the mine between the years of 1933 and 1942. The most prominent features -- the mill building and the thickener -- are associated with work at the mine that occurred after 1933, when the United Gold Mines Corporation reconditioned the existing mill and built the thickener. Also, the material in the two large accumulations of tailings probably are the product of this later period of mining. The Faith, or No. 3., tunnel driven by the York Mining Company in about 1913 is still visible at the site, and appears to have been used as the main haul way by successive operators, including the United Gold Mines Corporation.

It is difficult to associate the remainder of the features with specific periods of mining. These generally consist of open stopes, adits, and rock dumps, and may represent earlier attempts to access the gold-bearing ores of the Golden Messenger dike.

Evaluation and Recommendation

Although the corporate and technological development of the Golden Messenger Mine in many ways is representative of the typical pattern of mine development in the greater Helena area, the site remains, for the most part, lack physical integrity. The mill building is nearly collapsed, and the other structural remains have been reduced to piles of boards.

A few of the openings into the ore vein (stopes) remain visible, and although they reflect the way in which the mine was developed, it would be difficult to determine when these were mined and how they relate to other remains at the site. In addition, many of the tunnels have collapsed, leaving large areas of subsidence in the hill slope above the west side of the drainage bottom. Due to a lack of physical integrity, the site no longer can be considered representative of the historic activities with which it is associated, and does not appear to be eligible for nomination to the National Register of Historic Places.

The extent of reclamation to be conducted at this site has not been determined. The current lessee, Dale Scholtz (1988), indicated that the tailings at the site are valuable for their gold content, and he would not be amenable to their removal. Apparently, there are no objections to closure of the open stopes and partially collapsed adits, and infilling of the subsidence areas. In addition, the mill building in its present condition is dangerous, and removal of the remains of this building probably would be included in a reclamation plan for the site. No additional sites were located in the vicinity of the features to be reclaimed, and HRA recommends that no further cultural resource work be conducted at the site prior to reclamation.

4.4 The Carbonate Reclamation Area (Lewis & Clark County)

The Carbonate Reclamation Area is located in Lewis and Clark County on the opposite side of the Continental Divide from the Golden Messenger project area. The site to be reclaimed -- the Carbonate Mine -- is located within what was known historically as the Heddleston Mining District (Figure 45). This district is located between Rogers Pass and the town of Lincoln, at the head of the Blackfoot River drainage. The area may be described as one of steep, heavily timbered slopes dissected by narrow drainages. The reclamation area is located in the bottom and east-facing side slope of Swamp Gulch, a tributary of the Blackfoot River. Lodge pole pine, Douglas-fir and small stands of native aspen cover the area adjacent to the features remaining at the mine.

Pardee and Schrader (1933) provide a good overview of the geology and development history of the Heddleston district. Compared to other mining districts in the greater Helena region, the Heddleston district has a rather short history. William Heddleston and George Padbury discovered the first lode (the Calliope) in the district in 1889. The partners processed the ore in an arrastre they built on Pass Creek. However, the lode deposit was a small one and was soon depleted.

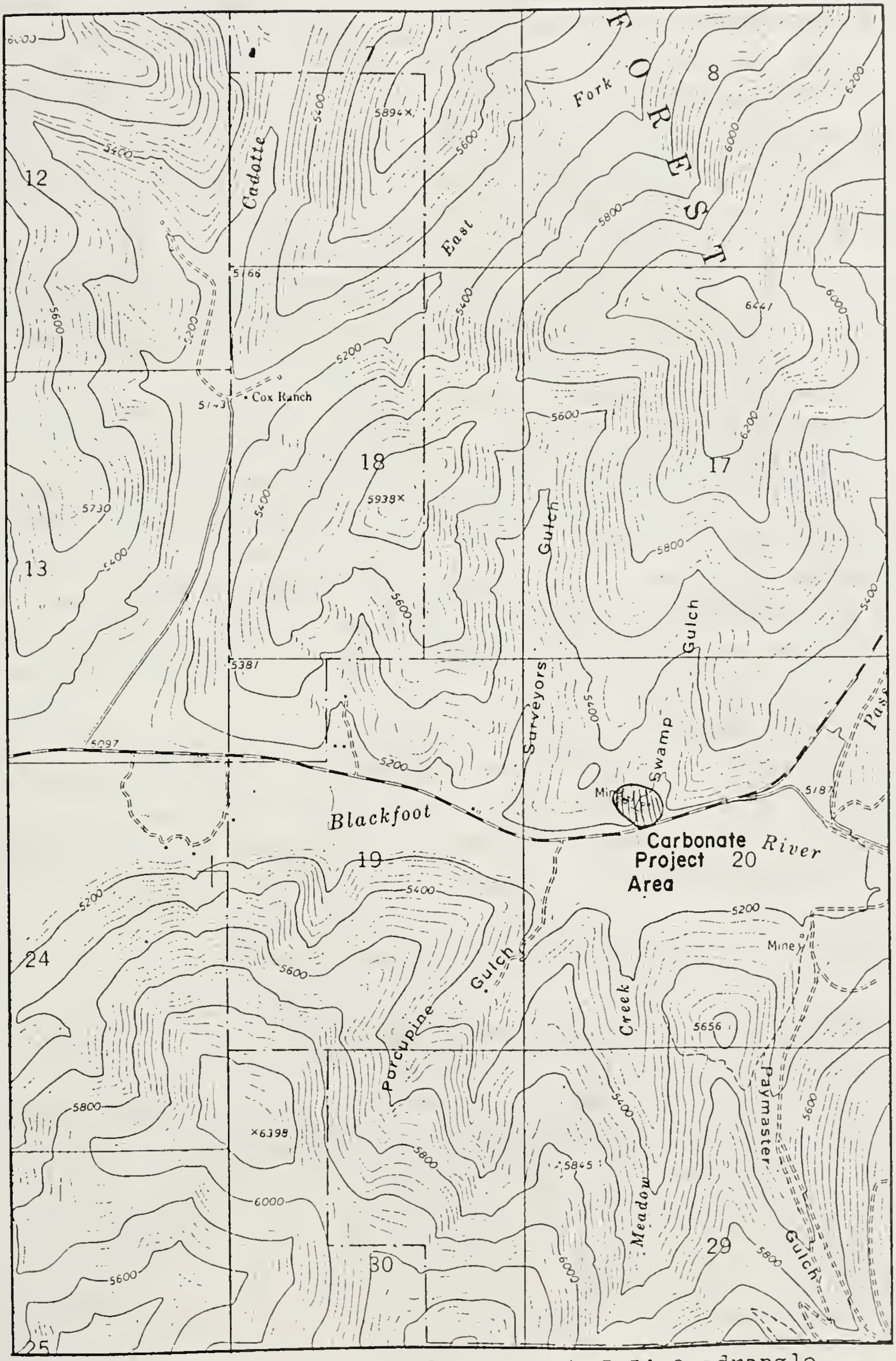


Figure 45. Copy of USGS Cadotte Creek 7.5' Quadrangle showing location of Carbonate project area.

Subsequent attempts to locate ore bodies were successful, but the ores found were "suitable only for smelting" (Pardee and Schrader 1933:88). This was a problem since the Heddleston district is rather isolated, and at the turn of the century was accessed only by pack trails. However, it appears that the ore discoveries were rich enough to warrant construction of roads and development work at the mines in the district.

> In 1919, after considerable development work had been done on different lodes, a concentrating mill was built at the Mike Horse mine. Since then the roads have been improved and considerable and concentrate have been shipped to smelters (Pardee and Schrader 1933:88).

Apparently, at least a part of the ore and/or concentrate was shipped to the smelter at East Helena, probably by rail.

Based upon field work done in the late 1920s, Pardee and Schrader (1933) show 17 mines within the Heddleston district, and estimate the total production for the district as of 1933 to be about $120,000. About half of this value came from lead, with the remaining from gold, silver, and copper. They cite high transportation costs as the main factor leading to the low profits for the district.

Apparently, mining in this district increased and became profitable only after 1940. McClernan (1983:31) indicated that, as of 1983, the Heddleston district was "credited with a production of about $11.6 million, with the bulk of the value coming from the Mike Horse mine."

4.4.1 The Carbonate Mine (Site 24LC873)

Description of the Physical Remains

The physical remains currently present at the Carbonate mine, represent development work and, apparently, milling (Figure 46). Feature 1 is a small board-lined pit (Figure 47). Wire nails secure the horizontal boards to the upright lumber

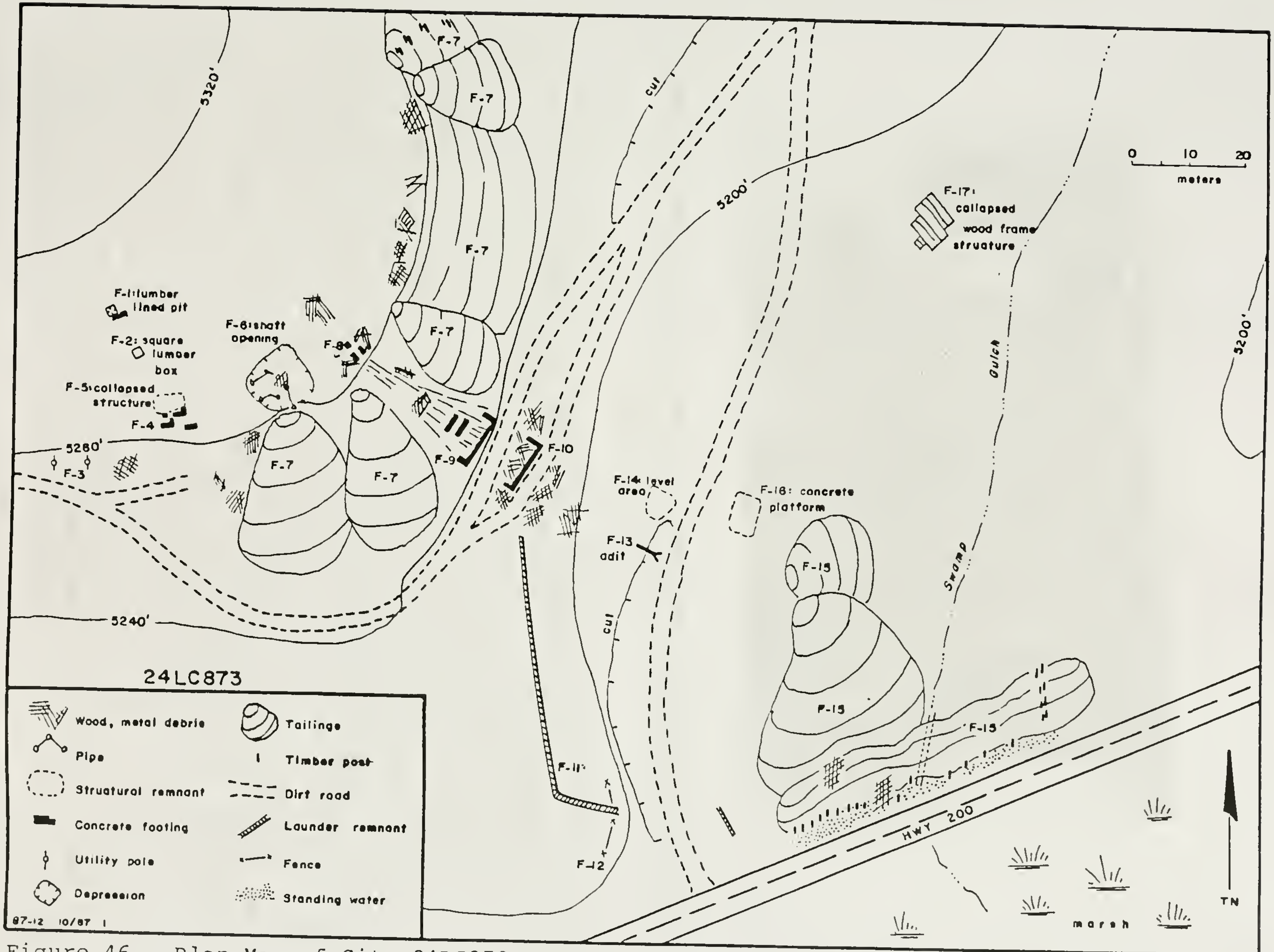


Figure 46. Plan Map of Site 24LC873.

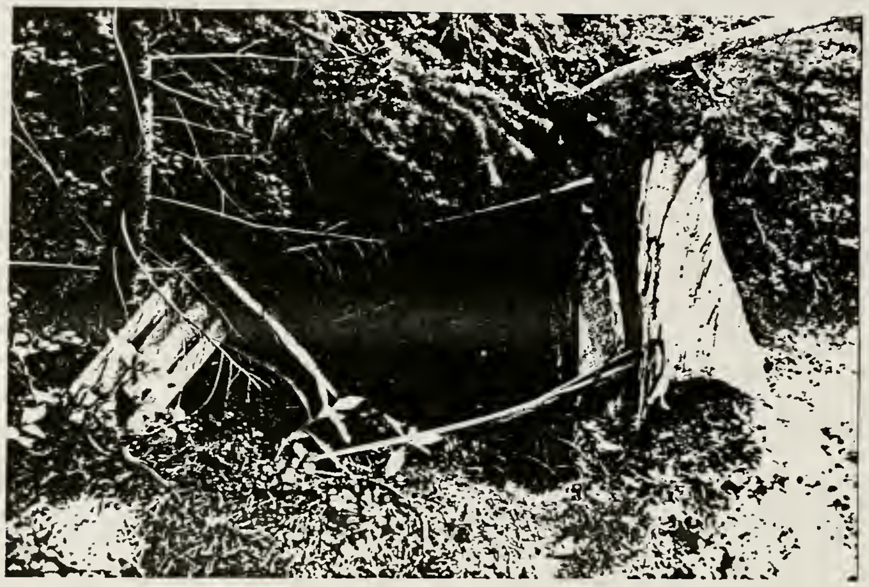


Figure 47. Detail of Feature 1 at Site 24LC872, a board-lined pit.

supports. A narrow, slightly depressed path leads from this feature downslope to a leveled area. The function of this feature is unknown.

Feature 2 consists of a square lumber box, with a floor and sides made of double planks. The exterior is reinforced with iron bars, and the whole rests on large planks, apparently to level it. The ends of two sides of the box are notched so that a whole side can be removed, as with a sliding panel (Figure 48). This feature lies adjacent to the uphill side of a relatively wide (4 meters) road. The most obvious function of this feature would be as a loading bin.

Feature 3 is a power line that accesses the site from the west.

Features 4 and 5 are both located together, and may represent parts of the same feature. As defined in this report, Feature 4 consists of a cluster of steel reinforced concrete pads

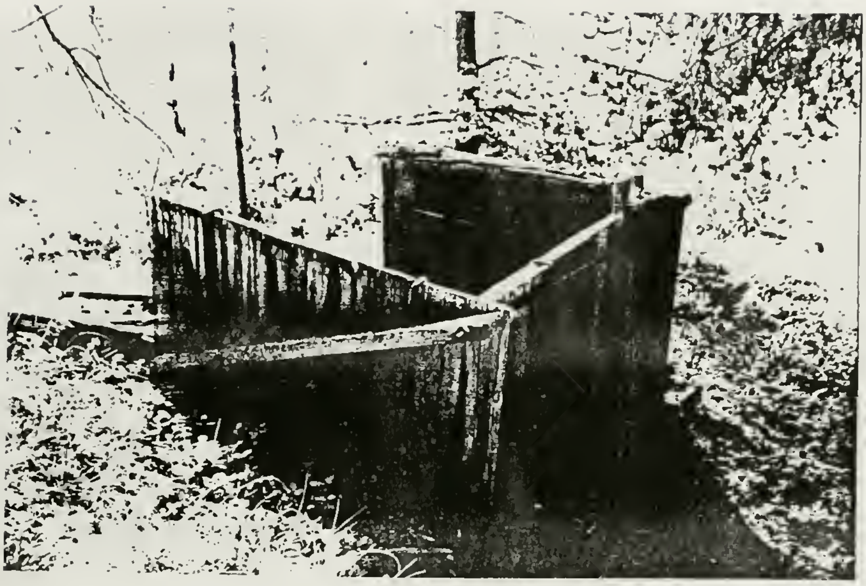


Figure 48. Feature 2, a possible loading bin at Site 24LC873.

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or footings (Figure 49). In direct association with these footings is some historic debris, including cyanide barrels, a rubber tire, rusted 25-gallon (?) drums, and scattered boards (Figure 50). Feature 5 lies on a level slightly above Feature 4 and appears to be the remains of a structure, now collapsed and scattered. Two small concrete pads are located adjacent to the south side of Feature 5 and may or may not be directly associated. It may be that all of the components of Features 4 and 5 at one time formed a single feature.

Feature 6 is the former opening to the shaft (Figure 51). Currently it is about 15 feet deep and the bottom is filled with trash. A large steel pipe (about 4 inches in diameter) protrudes from the center. A piece of rail and some scattered burned lumber are also located by this feature. There is no indication of a head-frame, which would have to have been present in order

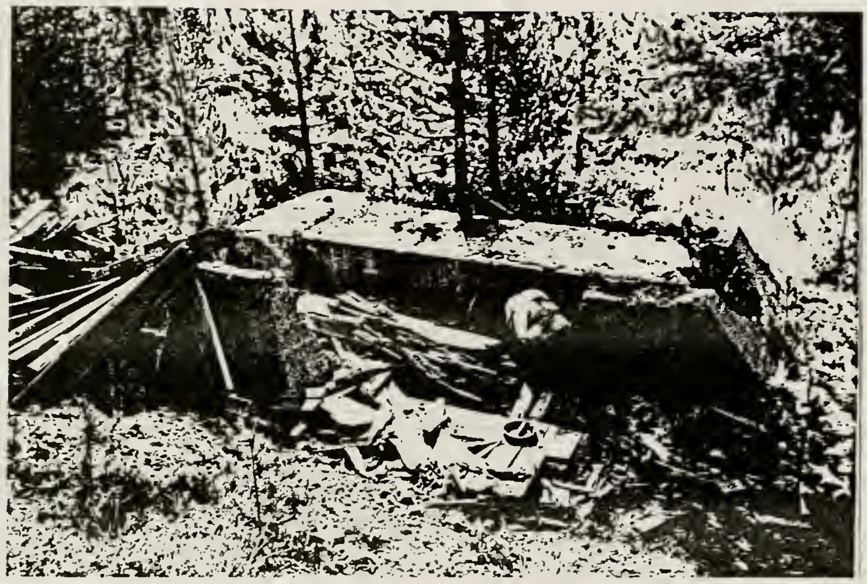

Figure 49. Overview of Feature 4 at Site 24LC873, a concrete footing.

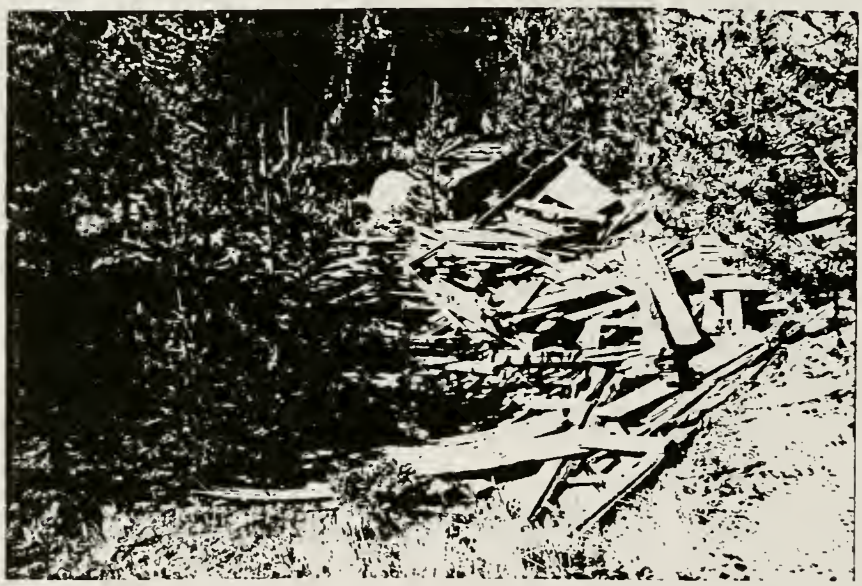

Figure 50. Overview of Features 4 and 5 (scattered lumber), looking south, at Site 24LC873.

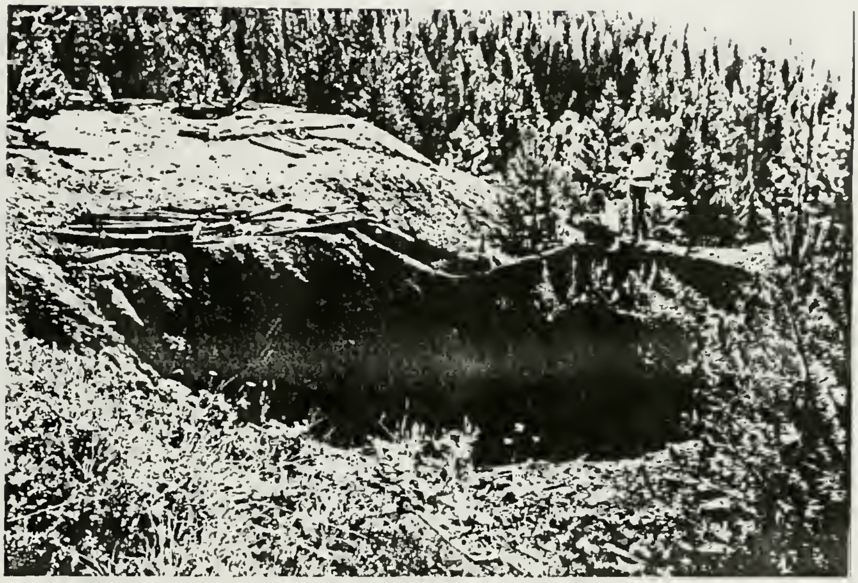

Figure 51. Overview of Feature 6 at Site 24LC873, a shaft opening.

to extract material from this mine entry. A series of waste rock dumps radiating from a level area adjacent to the shaft opening (identified on the map as Feature 7) indicate that a good deal of material was removed from the mine. The edge of this level area is littered with weathered boards, pieces of rail, steel pipe, and wire (Figure 52).

Feature 8 consists of a series of three concrete footings that lie adjacent to the top edge of the waste dump (Figure 53). Directly below Feature 8, at the bottom level of the waste dump, lies Feature 9. This feature consists of a series of three, steel-reinforced, concrete footings (Figure 54). An access road passes the down slope side of this feature, and separates it from Feature 10, another concrete footing. A large pile of lumber is associated with Feature 10 and may represent structural remains (Figure 55). A track also accesses the down slope side of

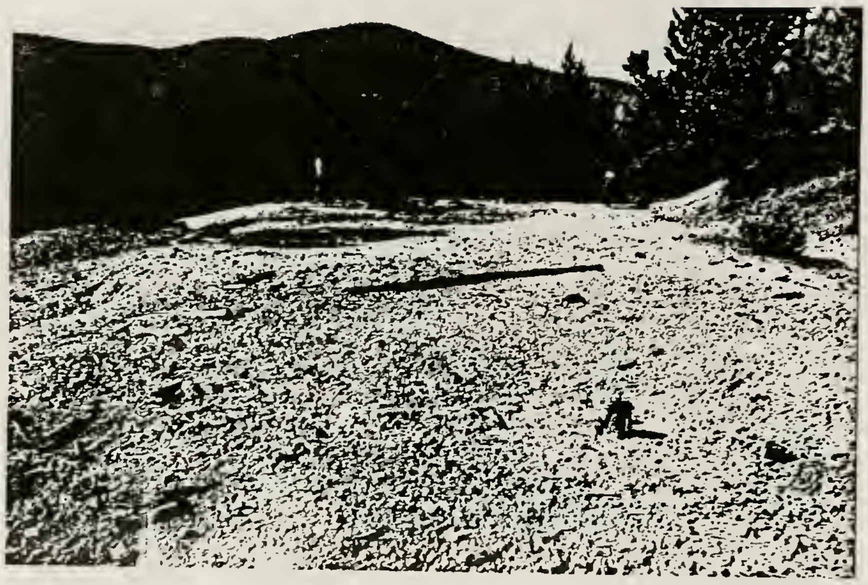

Figure 52. Overview to south of leveled area on top of Feature 7, a rock dump at Site 24LC873.

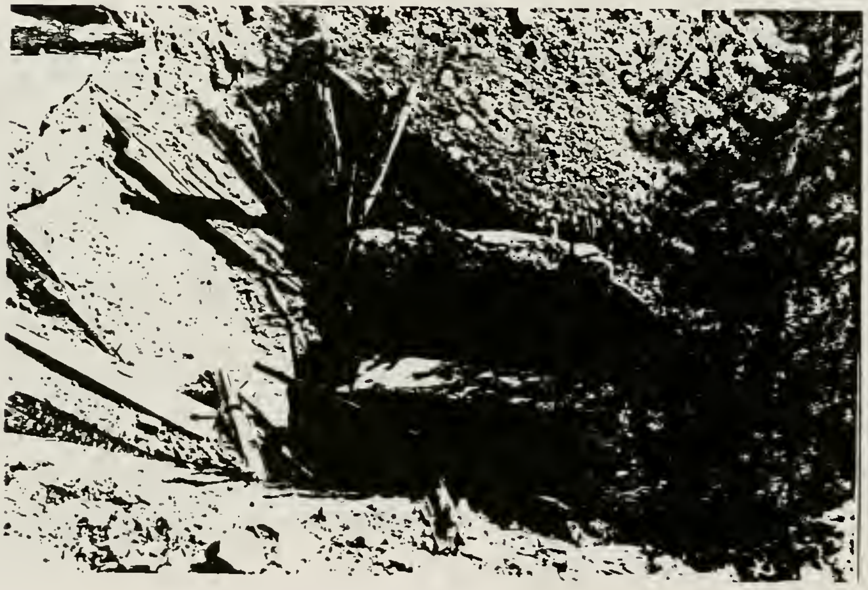

Figure 53. Feature 8 at Site 24LC873, concrete footings for a new shaft opening.

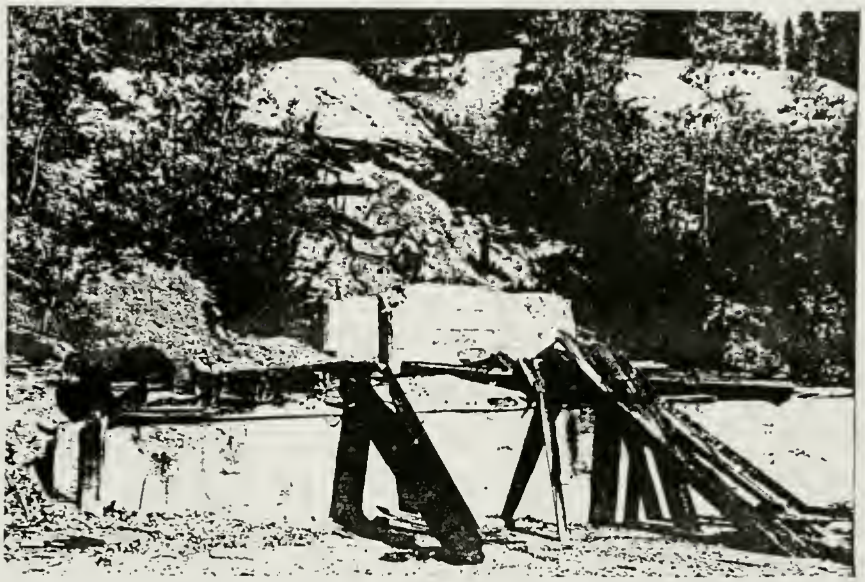

Figure 54. Feature 9 at Site 24LC873, concrete footings.

Figure 55. Looking southeast to Feature 10 at Site 24LC873, concrete footing/foundation with collapsed board structure.

Feature 10 and the scattered boards extend beyond the down slope side of this road.

Feature 11 appears to be the remains of a flume or "launder" (Figure 56). It descends down the hill slope in a southerly direction for about 45 meters before making an almost right-angle turn to the east, towards a series of tailings piles identified on the site map as Feature 15 (Figures 57 and 58). A fence made of upright poles and pieces split from poles (Feature 12) is built across the end of the flume (Figure 59).

Feature 13 appears to be a collapsed adit (Figure 60). It is located adjacent to the west side of the main access road to the site, at the north end of a large, shallow cut in the hill slope. The top of one large timber is visible, which may be the remains of a timber set. However, the entry has completely collapsed. Feature 14 is a small, leveled area in the side slope immediately north of Feature 13. It is located above the level of the road, and may have served as a platform for some type of structure.

Feature 16 is located on the east side of the Swamp Gulch road. This is a heavily overgrown concrete pad or platform, roughly rectangular in shape, that lies near the upper limit of the tailings piles. The final feature identified during field work (Feature 17) appears to be a collapsed, wood frame structure (Figure 61). It is located in a level area adjacent to the Swamp Gulch drainage channel, about 50 meters north of the concrete pad and the tailings piles. The entire area between the tailings and Feature 17 appears to have been disturbed in the past. A map of the Heddleston Mining District provided by Pardee and Schrader (1933) shows a camp in this general area, which would account for the disturbance and may be represented in part by Feature 17.

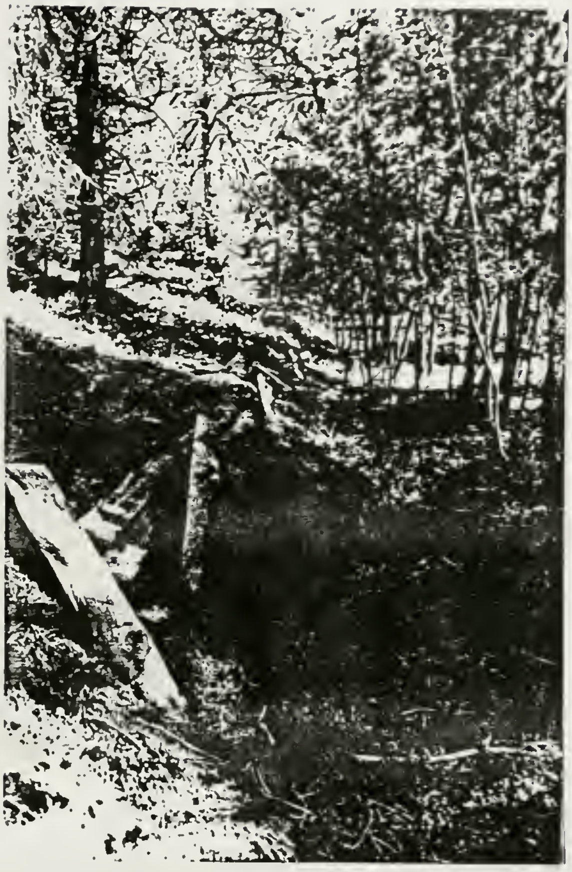

Figure 56. Looking north along Feature 11 at Site 24LC873, a flume or launder.

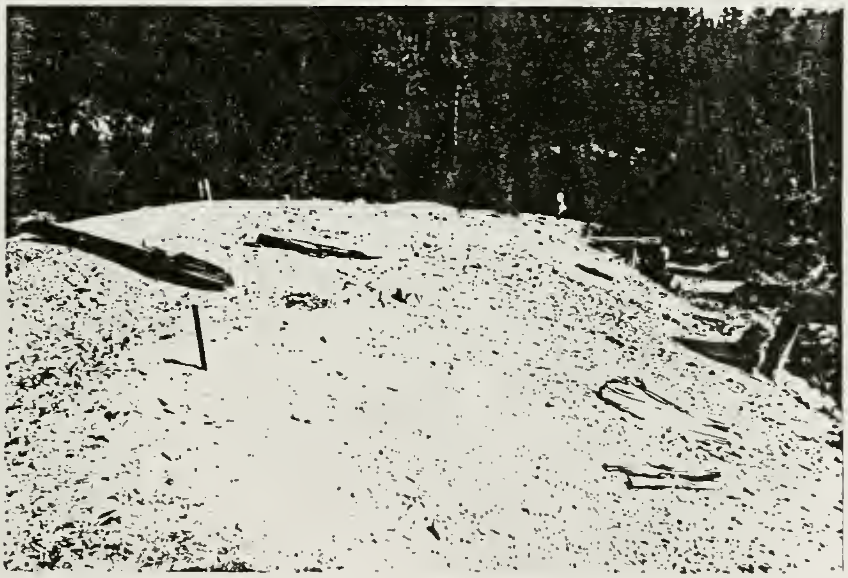

Figure 57. Overview of Site 24LC873 to east of bottom level of tailings, Feature 15.

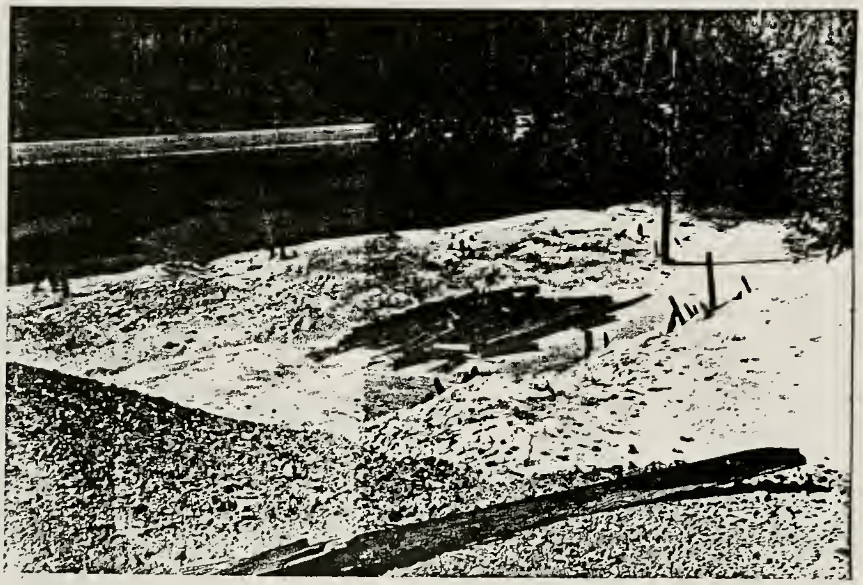

Figure 58. Overview of Site 24LC873 to west of bottom level of tailings adjacent to highway.

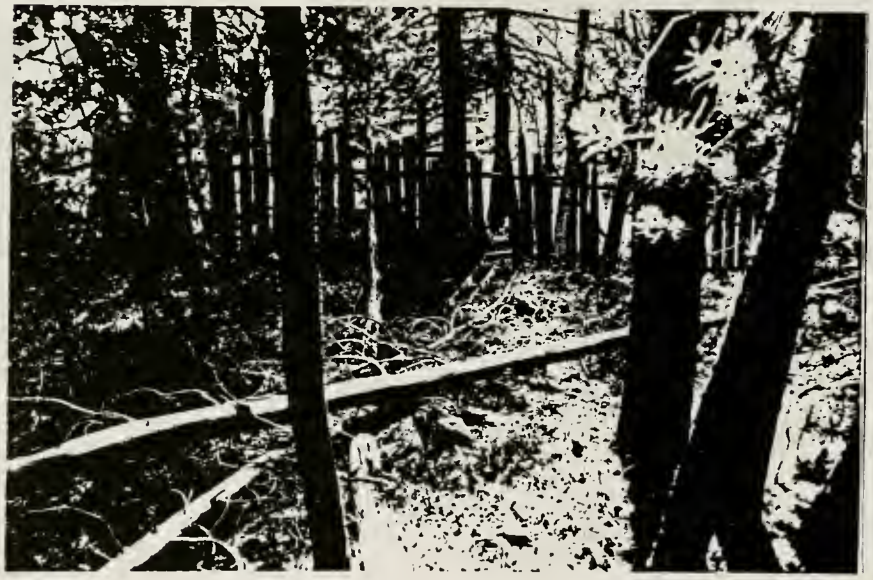

Figure 59. Looking east along second "leg" of Feature 11 to the fence (Feature 12) at Site 24LC873.

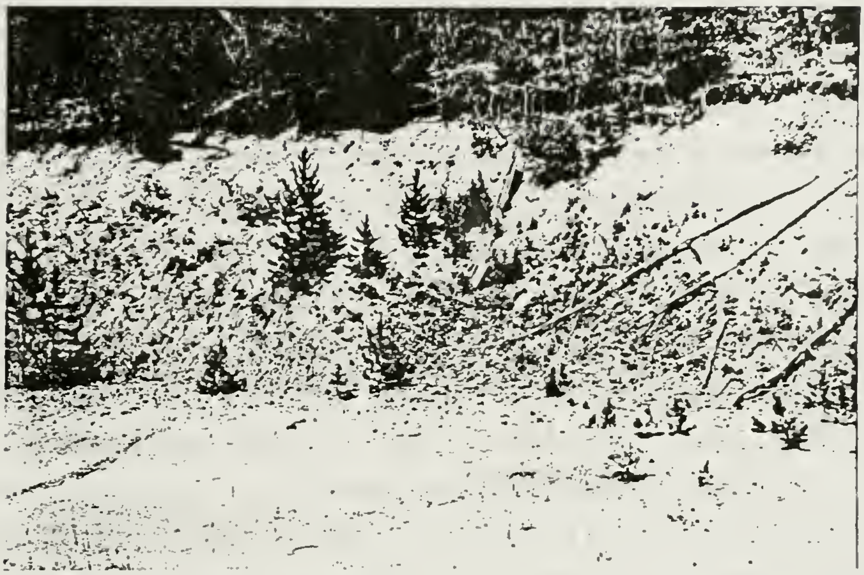

Figure 60. Looking west-northwest to Feature 13, a collapsed adit at Site 24LC873.

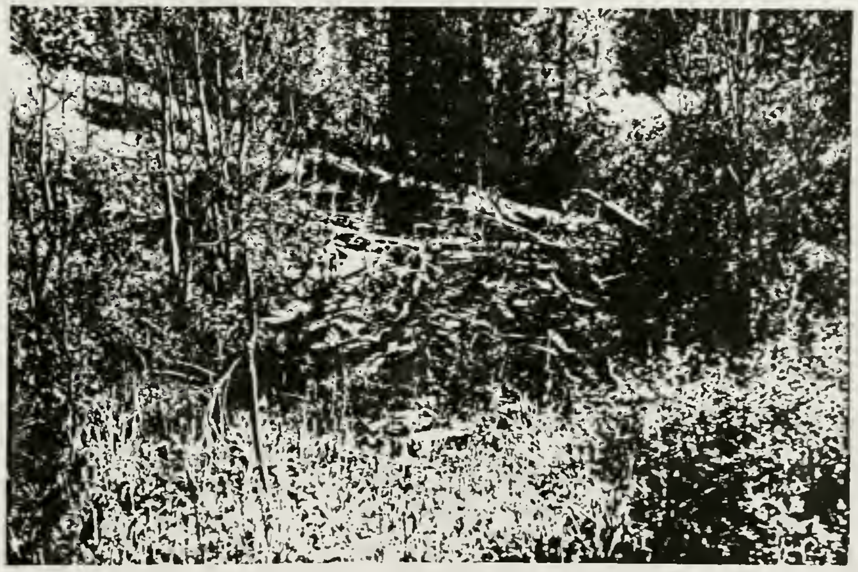

Figure 61. Overview of Site 24LC873 to the northeast of Feature 17, a collapsed structure.

Historical Development

As stated above, most of the production from the Heddleston district took place after the 1940s. Like the Golden Messenger Mine, discussed above, a number of lode claims were mined through the Carbonate Mine. David K. and Janet A. Rowand patented the main group of Carbonate claims (Carbonate Nos. 1, 2, 3, and 5) in March 1929. However, Pardee and Schrader (1933:88) indicate that development work at the mine had begun some time earlier: "In 1926 and 1927 development work at the Carbonate mine by J.A. Rowand constituted the principal activity in the district."

Presumably, J.A. Rowand is one and the same as the John A. Rowand who appears to have had dealings throughout many of the mining districts in the greater Helena area. His name appears as a claimant and patentee for mines in the Rimini, York, and Lincoln Gulch areas. Rowand was working in the Lincoln area as early as 1905. During that year, he patented the claim for the Big Blackfoot Mine, which is located approximately two miles west of the town of Lincoln. John Rowand built a mill and cyanide plant at the Big Blackfoot mine, which eventually was used to process lead and zinc ores from the Carbonate Mine during the 1940s (Routzahn 1986).

It is likely that David K. Rowand was related to John (perhaps a son or brother) and that they developed the workings at the Carbonate Mine together. The large waste piles and tailings indicate that rather extensive development and milling took place at the mine.

Pardee and Schrader provide a description of the development work at the mine as of 1928:

> The workings of the Carbonate mine ... include an adit about 850 feet long which intersects the lode 106 feet from the portal and beyond that point becomes a drift with several short crosscuts.... About 300 feet from the portal the adit connects at a depth of 110 feet with a shaft that extends 200 feet deeper. Levels are turned from the shaft at the bottom and at a depth of 100 feet below the adit (Pardee and Schrader 1933:99-100).

The location of the portal is likely represented by Feature 13, and the shaft by Feature 6.

Unfortunately, HRA was unable to locate any production statistics for the mine or a description of the milling methods that would aid in interpretation of some of the remaining features at the site. The placement of the concrete footings (represented by Features 8, 9, and 10) located at intervals along the hill slope probably indicates the use of a gravity system for milling and treatment. Feature 11 (the launder) may represent the way in which the tailings were transported downhill to the ponds.

Evaluation and Recommendation

Site 24LC875 does not appear to be eligible for nomination to the National Register of Historic Places. Although the site is associated with precious metals mining, an activity that figures prominently in the growth and development of the western part of the state, the site remains lack physical integrity. This lack of physical integrity limits the ability of the site to represent the historical events and individuals with which it is associated.

Apparently, the primary reclamation concern at this site is contamination of surface waters through erosion of materials in the tailings pond into the Blackfoot River drainage. Reclamation at this site will include removal of the tailings to an area about 100 feet from the Swamp Gulch drainage channel, where they will be covered to prevent further erosion. In addition, the remainder of the shaft will be filled, and it is likely that some removal of historic debris will take place.

4.5 Limestone Quarry Reclamation Area (Powell County)

The proposed Limestone Quarry Reclamation Area is located north of U.S. Highway 12, approximately two miles east of the small community of Elliston (Figure 62). The mine lies above the north bank of the Little Blackfoot River, on an open, south-facing slope. Stands of Douglas-fir occur in drainage courses, whereas the open slopes are grass covered and currently are used for pasture. The quarries are excavated into natural outcroppings of Madison limestone that occur along a southwest-trending ridge.

The features at this site result primarily from the extraction and processing of limestone, but there are indications that phosphate rock also may have been processed at this locality. Both limestone and phosphate rock occur in the immediate vicinity.

4.5.1 The Elliston Limestone Quarry (Site 24PW446)

Description of Physical Remains

As stated above, most of the features at site 24PW446 appear to result from mining and processing limestone (Figure 63). The features and structures associated with that activity will be discussed first in the following text.

Feature 1 consists of a series of three brick-lined, beehive-shaped kilns (Figures 64 and 65). These represent the remains of the three "steel-jacketed draw kilns" described by Perry in 1949 (McDonald 1988). The kilns lie on a leveled bench immediately above the old Great Northern Railroad grade. A stacked stone and concrete retaining wall reinforces the side slope below the kilns.

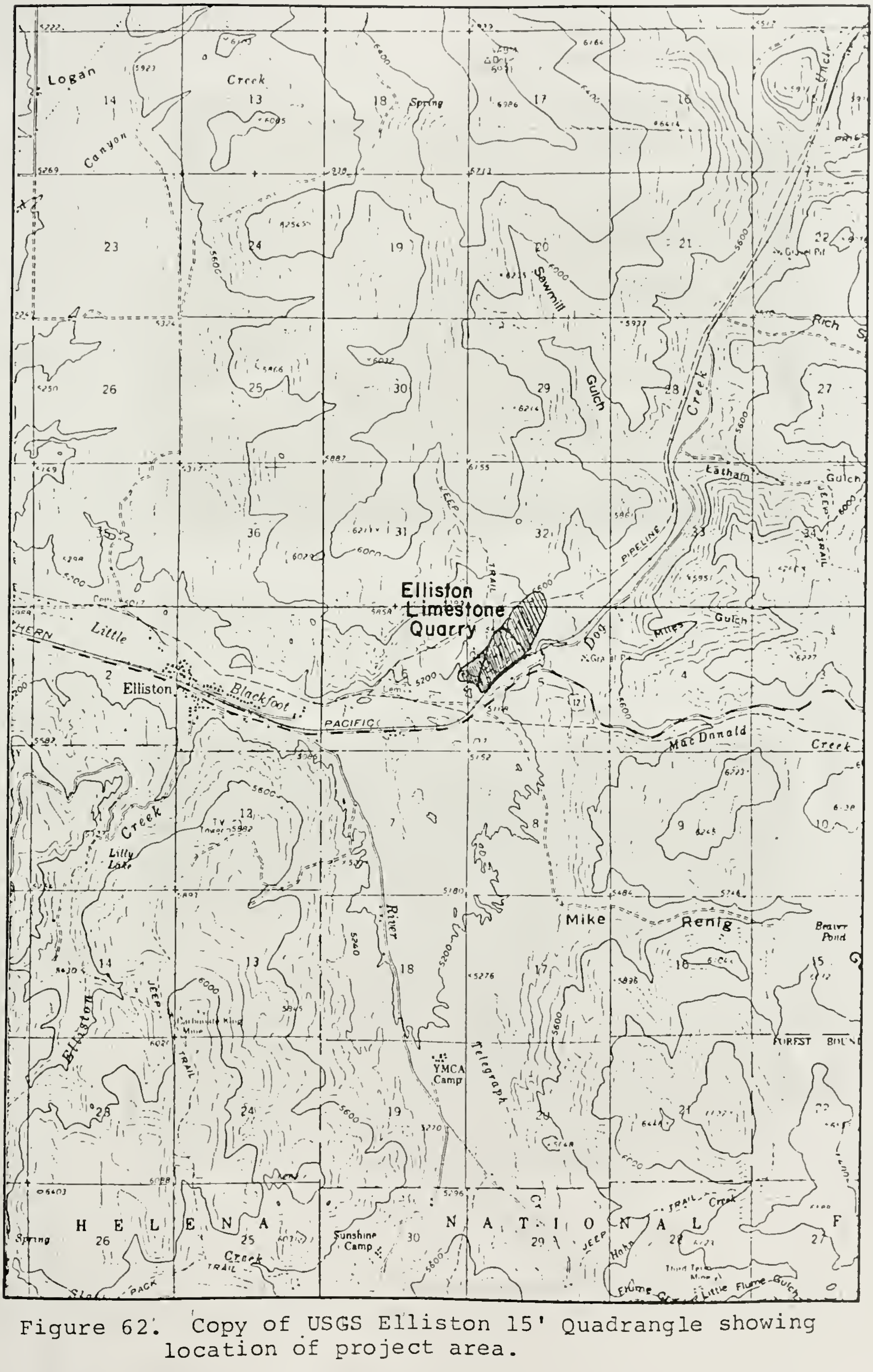

Figure 62. Copy of USGS Elliston 15' Quadrangle showing location of project area.

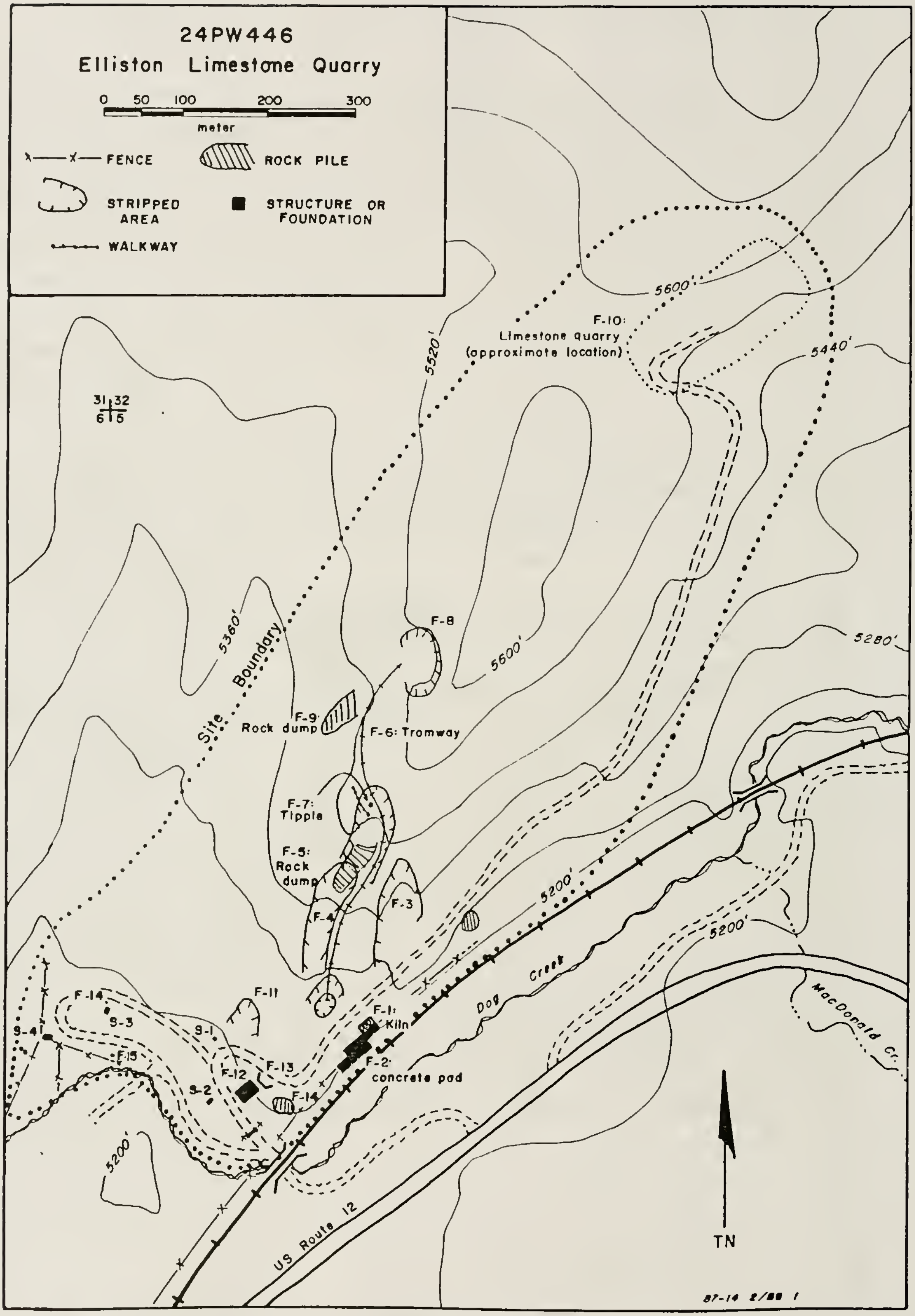

Figure 63. Plan Map of Site 24PW446 - Elliston Limestone Quarry.

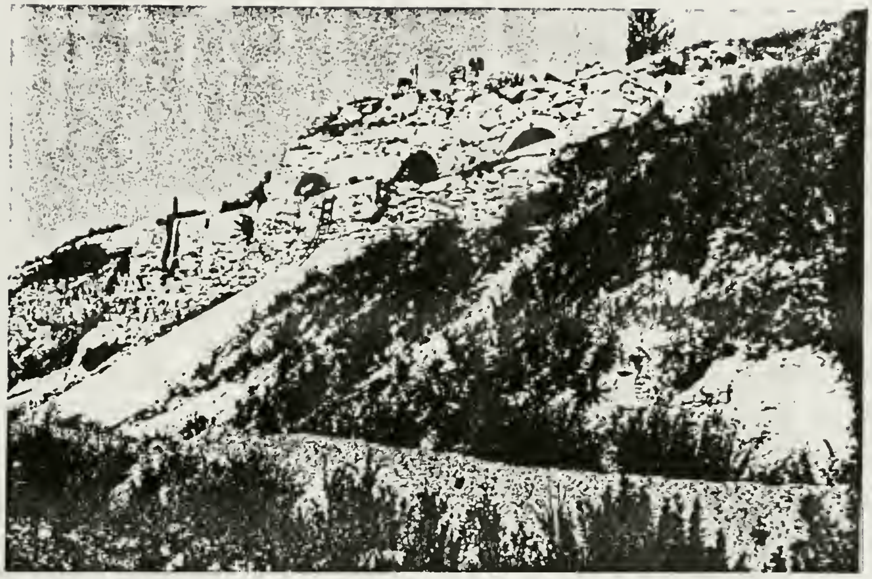

Figure 64. Looking southwest to Feature 1 at Site 24PW446, the lime kiln.

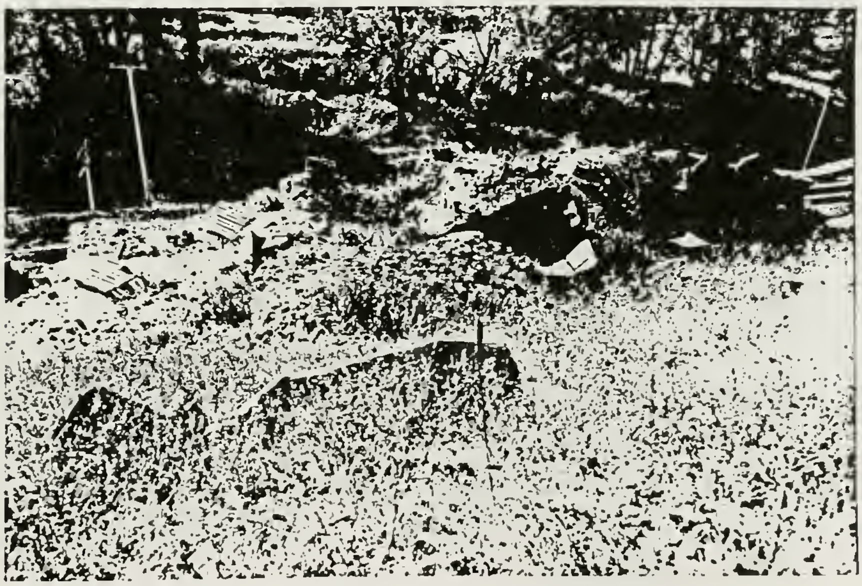

Figure 65. Looking down onto top of kilns at Site 24PW446.

The lower part of the arch of the kilns is formed with stacked stone with the upper part consisting of four concentric layers of brick (Figure 66). A variety of types of brick were used, one of which was stamped with the words "Evens & Howard, St. Louis 8." Inside each of the kilns is a square metal apparatus, presumably part of the oven, with a chute at the bottom (Figure 67). Feature 2 is a badly deteriorated concrete pad located adjacent to the southwest side of the kilns (Figure 68). A photograph of the kilns taken prior to 1949 shows that they were enclosed with a wood frame structure (Perry 1949:Plate 5). Feature 2 may represent part of the foundation for the enclosing structure.

Features 3 and 4 are large open excavated areas that straddle either side of a Feature 6, an elevated tramway. A large rock dump (Feature 5) is located at the head of Feature 4, on the west side of the tramway (Figure 69).

The tramway extends down the slope of the mountain from the edge of Feature 8, an open quarry at the upper end of the site (Figure 70). At the upper end of the tramway, a level bed was cut into the side hill to accommodate the rails (Figure 71). The lower part of the tram is elevated on a trestle-like structure. Each support section is formed by three upright log supports, and is cross-braced with poles (Figure 72).

Feature 7 is a large tipple made of cribbed logs. It has a pole railing around three sides of the top platform (Figures 73 and 74), and appears to have had an elevated walkway along the southwest side. It is located at the end of the segment of tramway that leads from the quarry at the upper end of the site, around a relatively level side slope. The section of tramway below the tipple, appears to have been removed or collapsed (Figure 75). It is assumed that the tramway once formed a continuous feed line from the quarry at the top to the level just above the lime kilns.

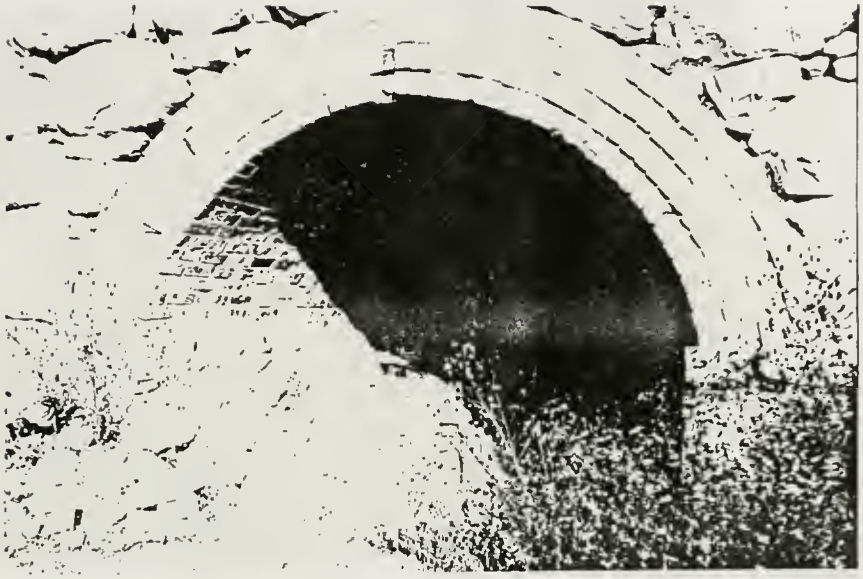

Figure 66. Detail of lime kiln at Site 24PW446 showing brick layers in upper area.

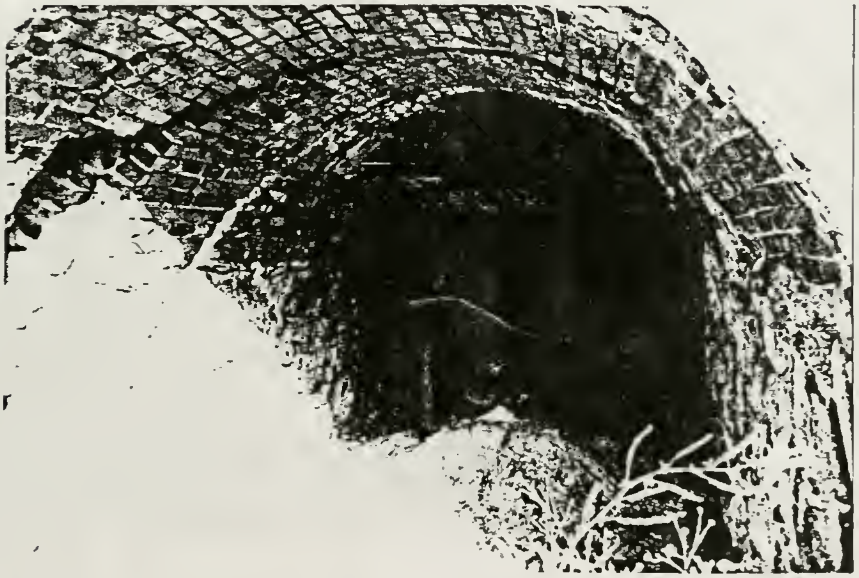

Figure 67. Interior of kiln at Site 24PW446 showing interior apparatus.

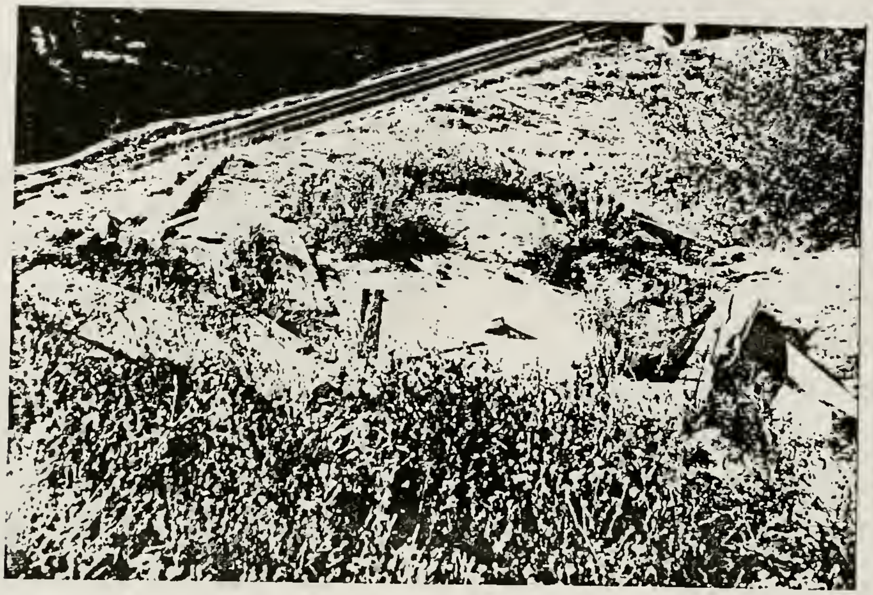

Figure 68. Looking down into Feature 2 at Site 24PW446, a concrete pad.

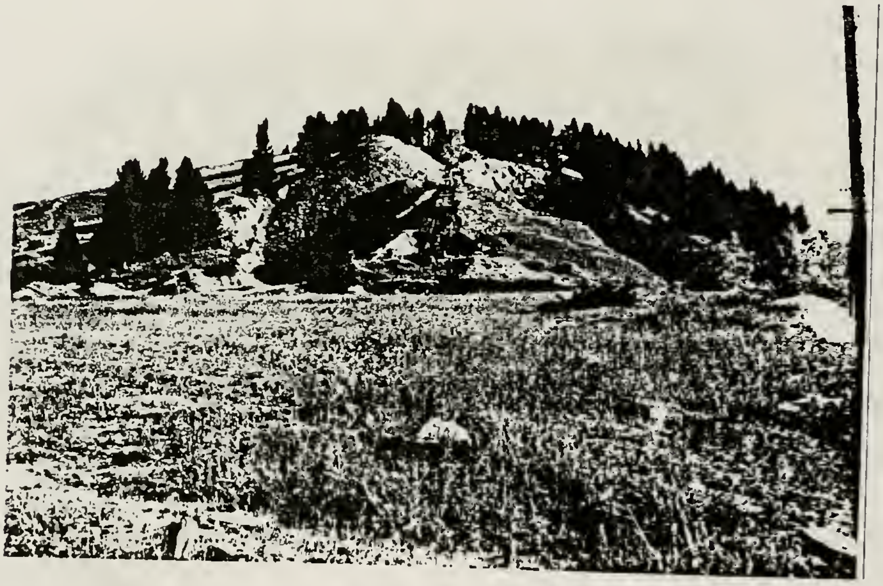

Figure 69. Looking north-northeast to Features 3, 4, 5, and 6 at Site 24PW446.

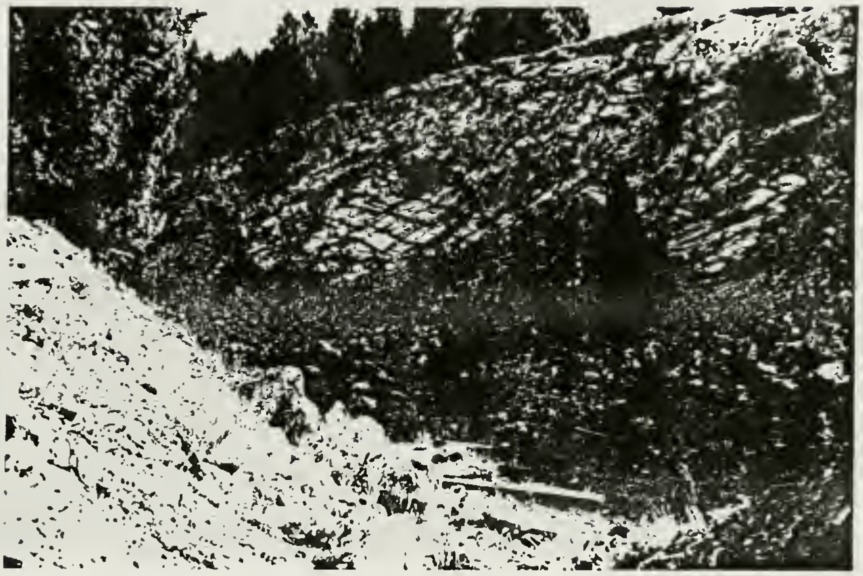

Figure 70. Open quarry at upper end of Site 24PW446.

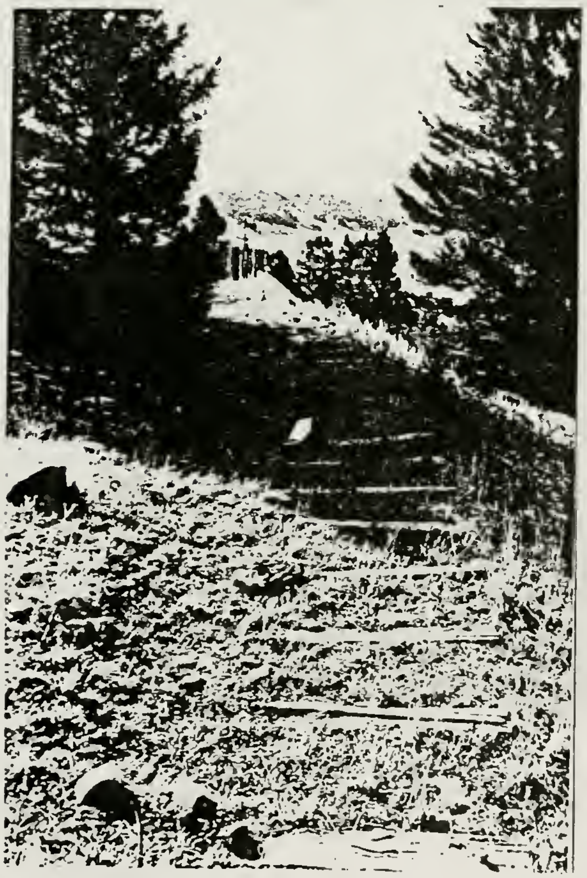

Figure 71. Upper portion of tramway built into shelf in side hill at Site 24PW446.

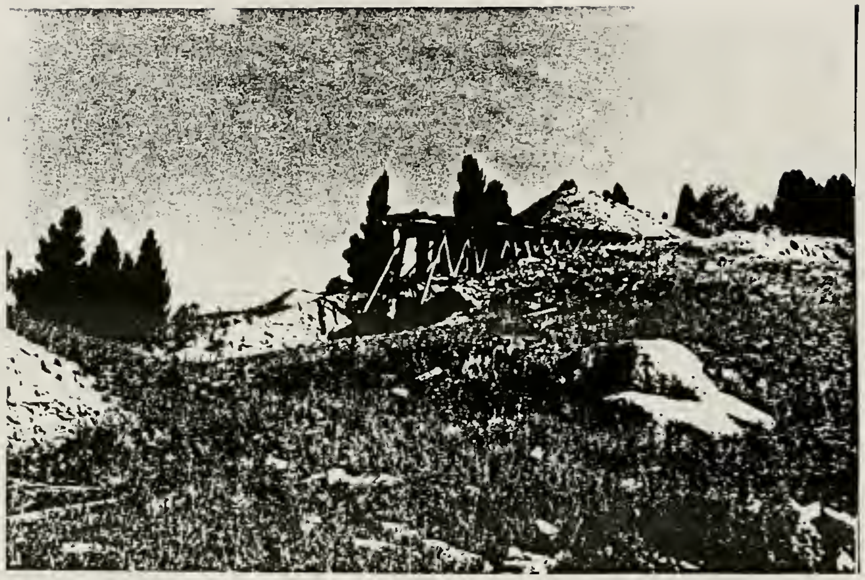

Figure 72. Lower portion of tramway at Site 24PW446 showing elevated trestle-like substructure.

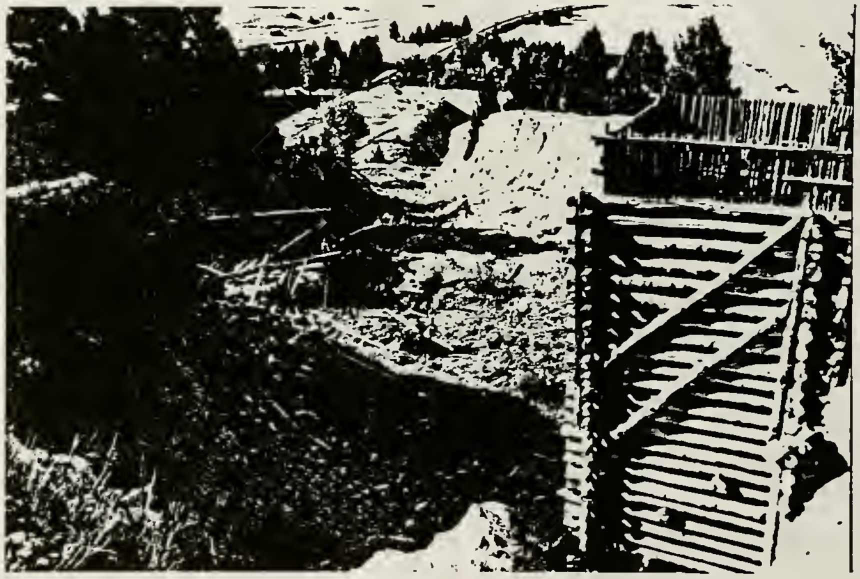

Figure 73. Looking southwest toward Feature 7, tipple at upper end of Site 24PW446.

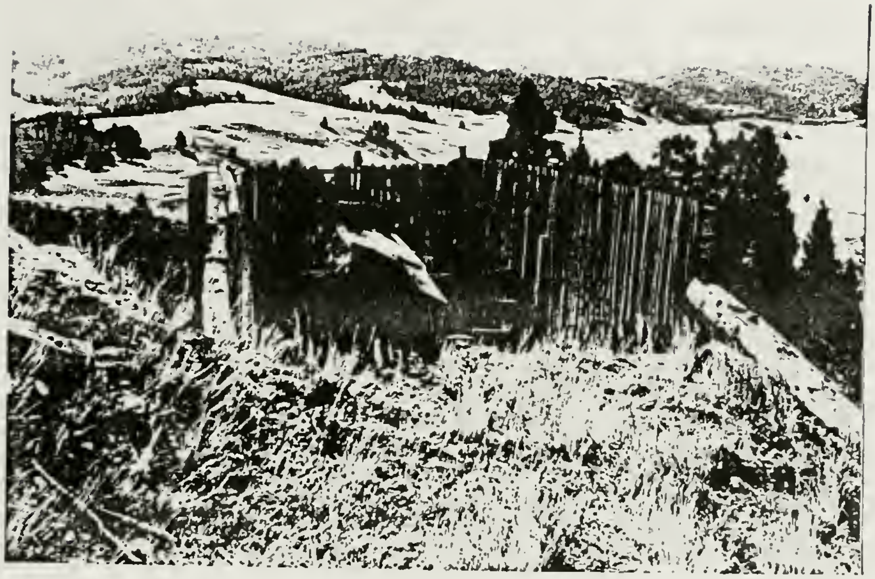

Figure 74. Looking south along top of tipple at Site 24PW446, showing pole railing.

Figure 75. Looking north towards tipple along former route of tramway at Site 24PW446.

Feature 9 is a rather extensive rock dump located along the side slope below the open quarry (Feature 8). The top of this feature is level and may at one time also have contained a tramway to facilitate the dumping of waste rock at the end of the pile (Figure 76).

The area at the base of the tramway has been leveled, and represents the former location of the majority of the production facilities for the limestone quarry. An overview photo of the Elliston lime plant available in Perry's 1949 publication shows a rather elaborate facility with several large structures, one of which enclosed the kilns. The plant was organized so that the processed lime was loaded directly into railroad cars on the track below (McDonald 1988). With the exception of the kilns, none of these structures and features remains today.

Feature 10 is a large, open quarry located a little less than a mile from the main processing area (Figure 77). This quarry was the last to be used at the site (in the 1960s), raw limestone being transported to the processing area by truck.

Feature 11 is a large excavation in the side slope east of the area that would have contained the processing plant (Figure 78). This may be another quarry area. Structure 1 is located below and to the southwest of Feature 10 and consists of a small, gable-roofed structure built into the side hill (Figure 79). The walls are formed by laying 2x4 boards horizontally on top of each other and securing them with wire nails. This structure has an iron door and a corrugated metal roof.

Feature 12 is a large, concrete slab foundation (Figure 80). According to Tom Bates (1987), current owner of the parcel containing this feature, this represents the remains of a phosphate processing plant. Stacks of deteriorating plastic bags, printed with the words "Humi Phos Lawn & Garden Mix -- Glacier Products Polson MT" are found at the edge of this feature. This feature is located in an area slightly below and southwest of the area that formerly contained the lime processing

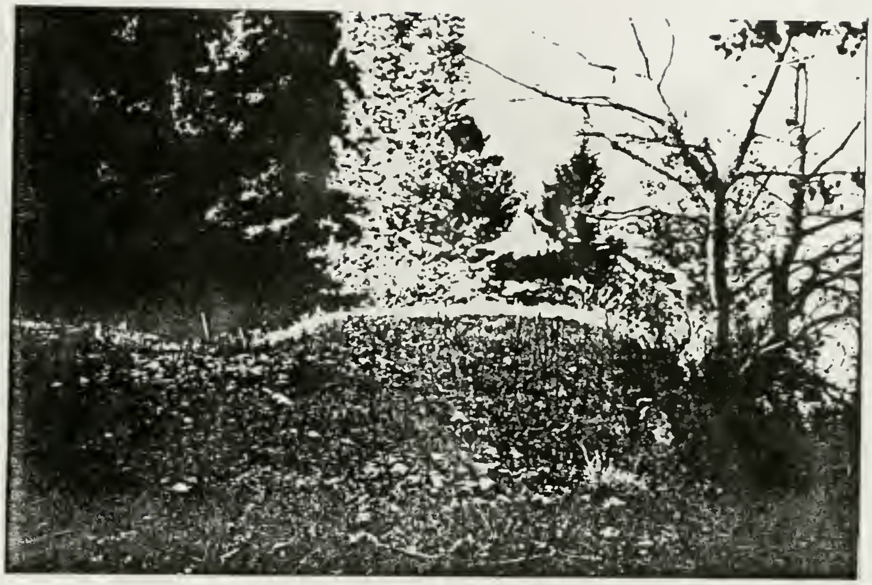

Figure 76. Looking southwest along the level top of rock dump at Site 24PW446.

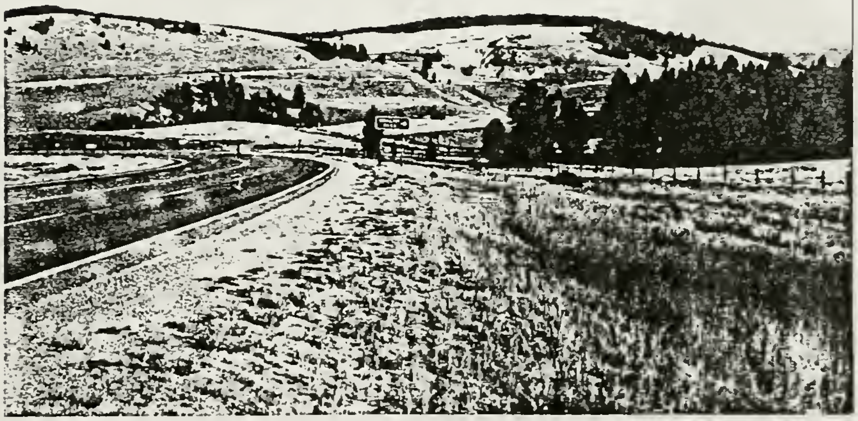

Figure 77. Feature 10 at Site 24PW446, a large quarry located northeast of the main processing area. (Photo taken from highway right-of-way at bottom of Rogers Pass).

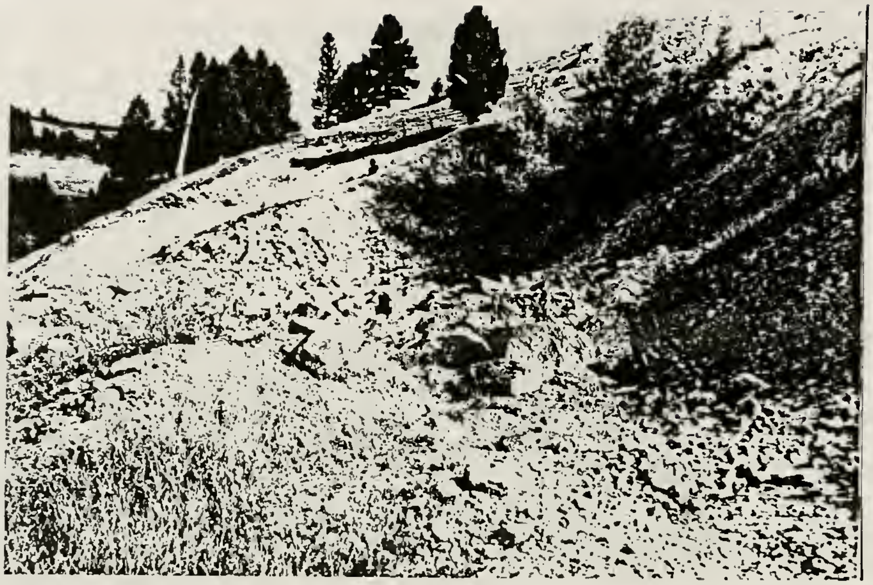

Figure 78. Feature 11 at Site 24PW446, a large excavation in the side slope (another quarry?) at Site 24PW446.

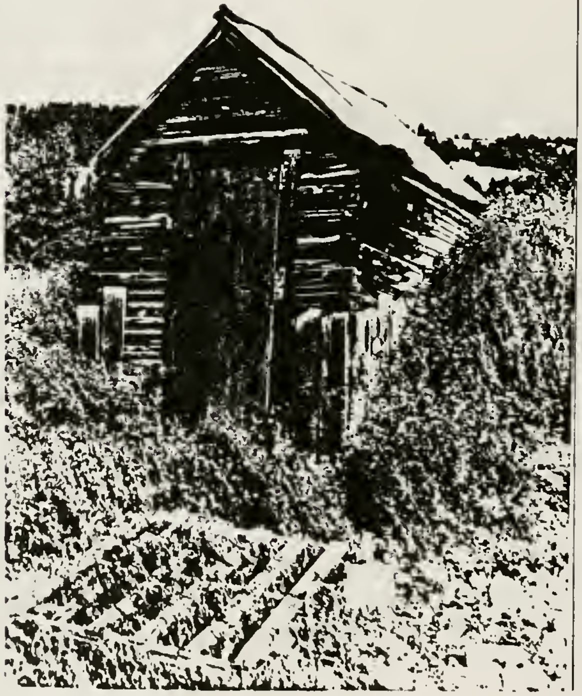

Figure 79. Southeast and northeast elevations of Structure 1 at Site 24PW446.

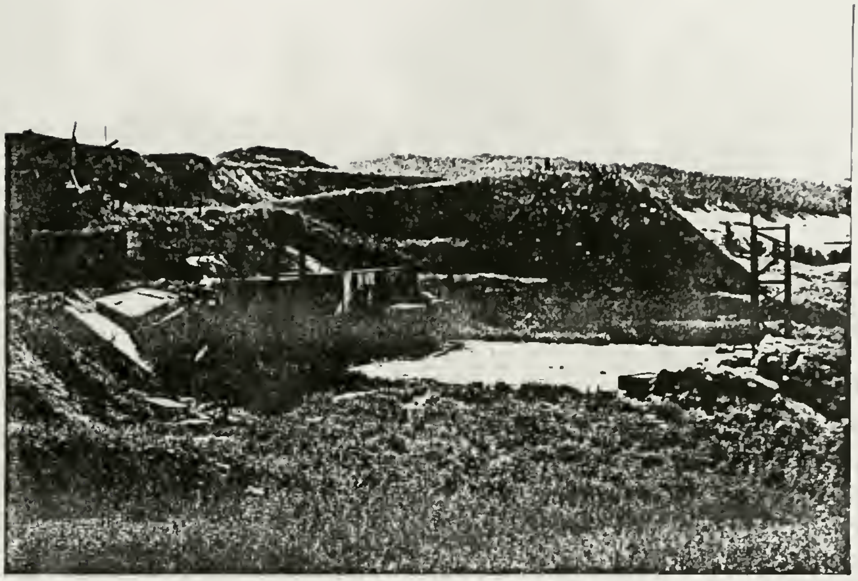

Figure 80. Feature 11 at Site 24PW446, a concrete slab foundation.

plant. A road is located along the uphill side of Feature 12. A concrete retaining wall along the downslope side of the road (Feature 13) indicates the location where the raw phosphate rock was loaded into the processing plant.

Structure 2 is a large, rectangular, wood frame structure with a shed-style roof (Figure 81). The walls and roof are covered with corrugated metal. It is located on the same level as Feature 12, and may have been associated with either lime or phosphate production in the area.

In addition to the above-mentioned features and structures, a small complex of structures, including a dwelling, and outhouse, and a barn, is located west of the main site area on a terrace above the Little Blackfoot River. According to Earl McDonald (1988), the dwelling was occupied by employees of the lime plant.

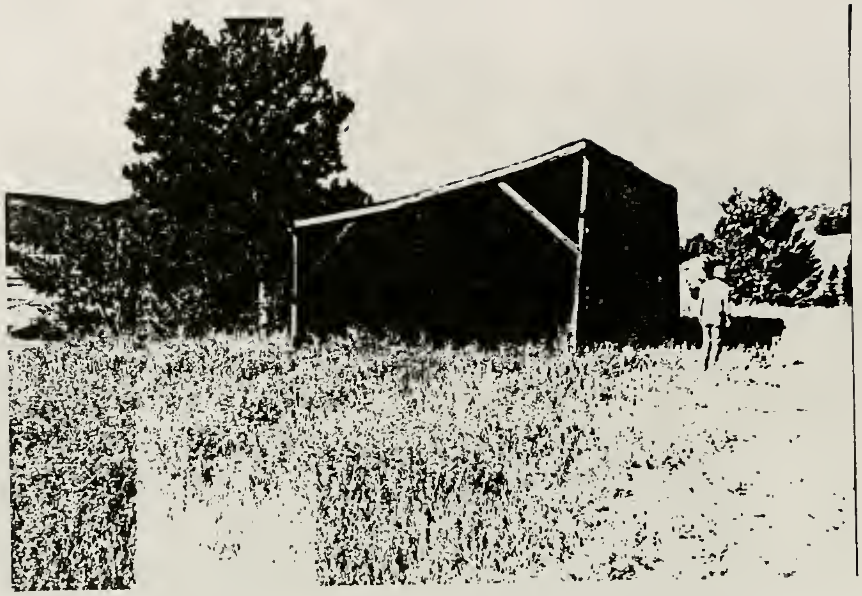

Figure 81. Northeast and southeast elevations of Structure 2 at Site 24PW446.

Structure 3 is a one-story log dwelling with a gable roof (Figures 82 and 83). The exterior walls are daubed with concrete and the gabled ends are covered with wood shingles, which at one time were painted green. There is an open, shed-roofed porch on the west elevation, the north end of which is enclosed. A wood frame, shed-roofed addition is located on the rear (east) elevation and is finished in board and batten style. The north elevation of the main structure has an exterior stone chimney. The squared wall logs appear to have had square notches, but these are now covered with corner boards. The foundation appears to be a combination of stone and wooden beams. Feature 14 is a small, wood frame, shed-roofed outhouse located behind (up slope) from Structure 3.

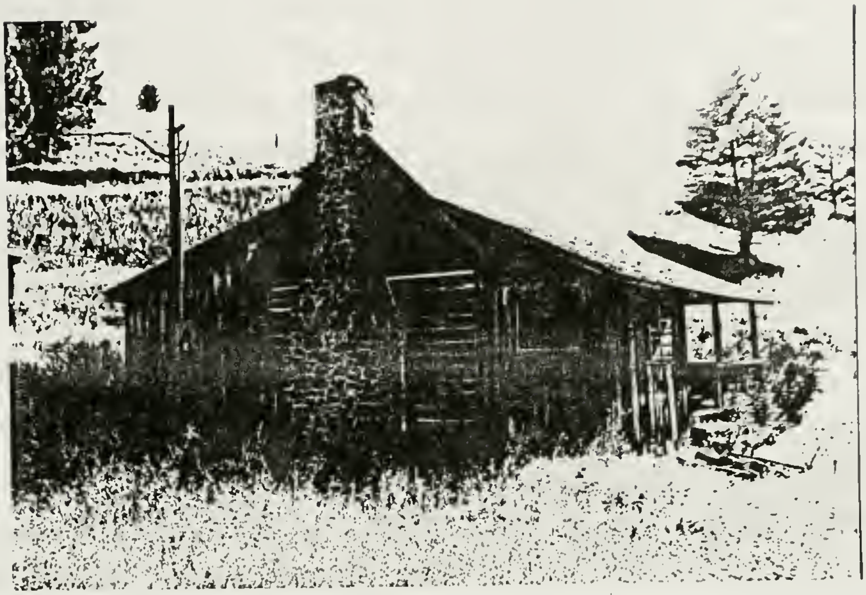

Figure 82. North and west elevations of Structure 3 at Site 24PW446.

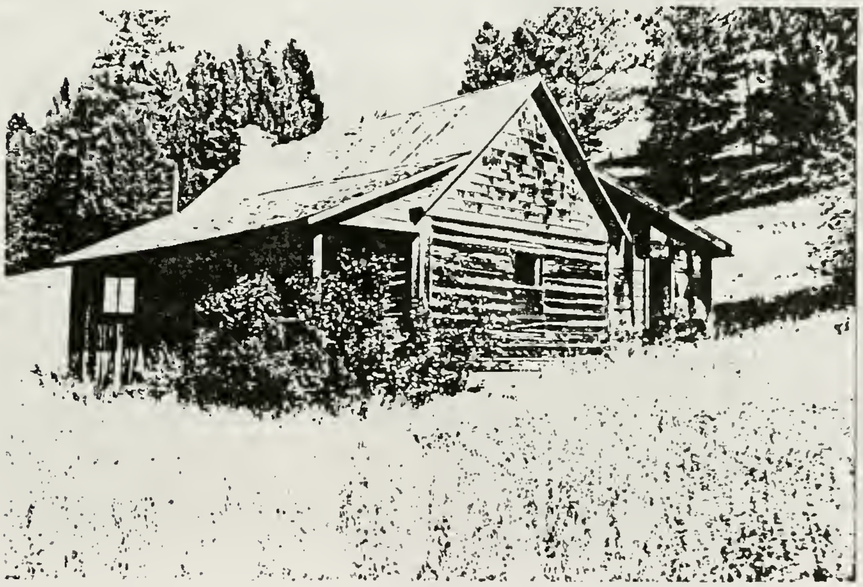

Figure 83. West and south elevations of Structure 3 at Site 24PW446.

Structure 4 is a large, wood frame, gable-roofed barn with shed-roofed extensions on the east and west elevations (Figure 84). The structure rests on a foundation of beams and stones, and the exterior walls are covered with asphalt shingles laid over boards. A long, sliding door is located in the north-facing wall, and two hinged doors and a sliding door are located in the south elevation.

Feature 15 may be a pump house. It is a small plywood enclosure with a hinged door (Figure 85), located adjacent to the Little Blackfoot River.

Historical Development

As indicated above, the majority of the features remaining at this site are associated with a limestone quarry and processing plant, operated from around the turn of the century until the mid-1960s. Powell County land transfer records housed at the Powell County Courthouse in Deerlodge, Montana, indicated that Section 5 (T9N, R6W) was originally part of a patent issued to the Northern Pacific Railway Company. In 1902, the railroad sold the parcel containing the site to George Thompson. Thompson received a U.S. patent to an adjoining parcel in November 1904, and it appears to have been his intention to develop the limestone at this location, while also developing other ventures and investments.

A biography of Thompson is found in Progressive Men of the State of Montana, published in 1902, and describes Thompson as a man interested in many ventures. "He is largely interested in copper mines, which have proved successful and for some time he was engaged in the lime business, but having an opportunity to dispose of it profitably he let it go" (Progressive Men 1902:1435).

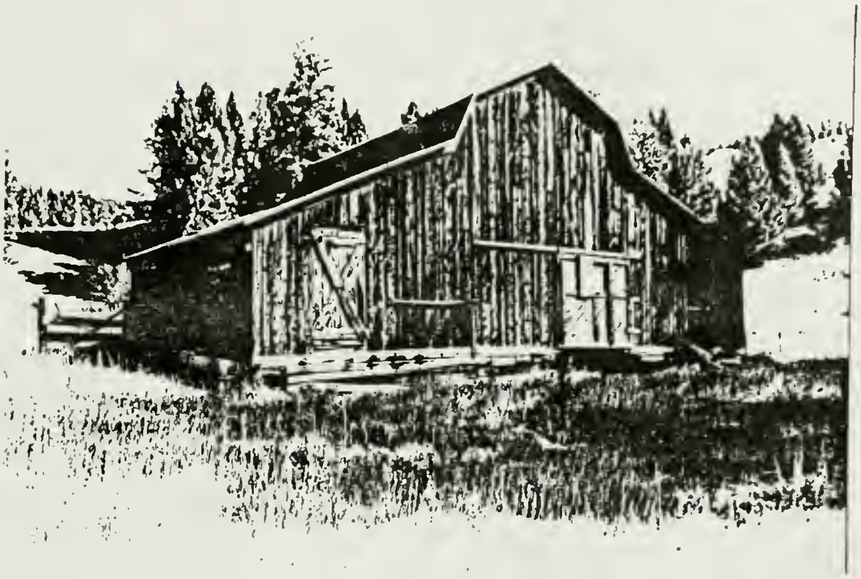

Figure 84. West and south elevations of Structure 4, a barn at Site 24PW446.

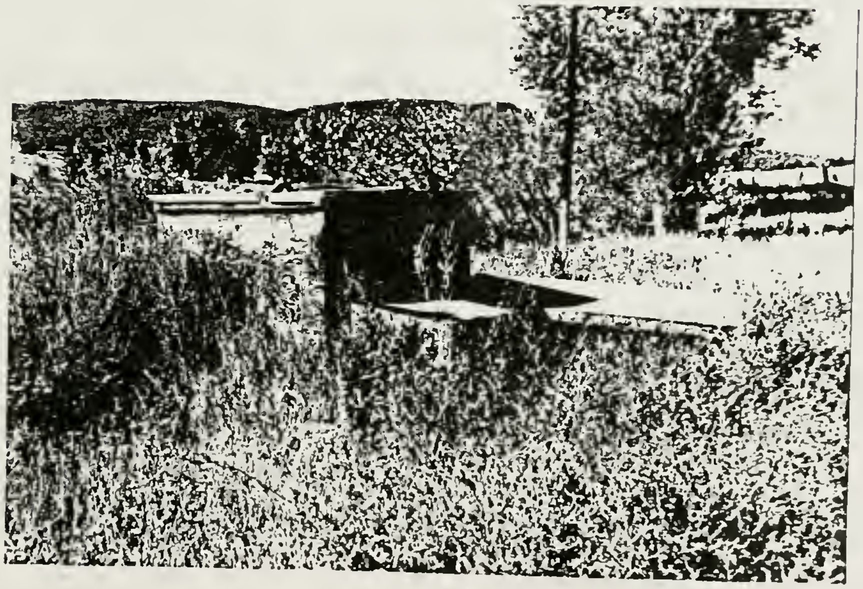

Figure 85. Feature 15 at Site 24PW446, a small plywood enclosure, possibly a pump house.

It appears that the production of lime at this site began with the interest of George Thompson, but the subsequent chain of ownership is difficult to trace. Thompson sold lands in the north part of Section 5 to W.F. Kuehn, H.F. Kuehn, and W.A. Walker in 1902. However, in 1913, title reverted to Thompson via a District Court decree.

Apparently, W.F. Kuehn retained some interest in the property, because in 1936 he filed a Quit Claim Deed, relinquishing ownership to the Elliston Lime Company (then of Helena). HRA was unable to locate a relinquishment by George Thompson, and it may be that he and his heirs retained a part ownership in the lime works. In any event, the property appears to have operated under the name of the Elliston Lime Company until the early 1960s. In 1968, the parcel that contains the older quarries, the tipple, and the bin was transferred to Hugh G. King via a U.S. Marshall's deed.

Although it appears that lime processing had taken place at this site since the turn of the century, little information could be found regarding the early operations. Stone and Bonine (1913) mention a "quarry and lime kilns 2 miles east of Elliston," but give no details of its method of operation.

Earl McDonald (1988), a former mine employee who worked at the plant for 17 months prior to its destruction by fire in 1965, indicated that the quarry used in the 1960s was the one located in the south part of Section 32. The limestone was taken by truck down to the kilns from the quarry. The tipple, the tramway and its associated quarries all appear to date to an earlier period of mining.

Probably the best description of the later phase of mining at this site comes from Perry's 1949 publication describing the lime industry in Montana. Perry describes the Elliston mine as follows:

> The most important source of quicklime and hydrated lime used in the domestic trade in Montana is one mile east of Elliston.... Lime has been burned at this locality for 50 years or more and operations have been

> practically continuous. ... The plant, operated by the Elliston Lime Company, has three vertical steel-jacketed draw kilns, machinery for hydrating the quicklime, and other necessary equipment such as crushers, pulverizers and elevators, all located adjacent to the Northern Pacific Railway. Daily capacity of the kilns is from 15 to 20 tons each, however, ordinarily one kiln produces enough lime to supply demand. The burning of lime is a continuous operation, 24 hours per day each day of the year. The pipe line carrying natural gas from Cut Bank to Helena passes close to the plant, and two kilns equipped with gas burners are using natural gas. Limestone is obtained from one or more of several open quarries cut into the rolling hill-slope 300 feet to one-half mile north of the plant, and slightly higher in elevation. Rock is sized mainly by passing through a "grizzly" and hauled to the kilns by truck (Perry 1949:35).

Perry further describes the markets for the Elliston Lime Company. He indicates that in the late 1940s, two-thirds of the product produced by the Elliston Lime Company consisted of hydrated lime -- the remaining third of quicklime. Consumers were mostly lumber yards where the product was sold for building purposes. The Elliston Lime Company also shipped about 6,000 tons of untreated limestone to the sugar refinery at Chinook, Montana (Perry 1949:35).

According to Earl McDonald (1988), a former mine employee, the plant burned down in July of 1965. McDonald indicated that the owner of the plant, Henry Hukill of Deerlodge, hoped to rebuild the plant but failed to obtain the needed capital, and the mine was never reopened.

HRA was able to locate little information regarding the manufacture of phosphate fertilizers at this site. It does not appear to have been part of an early phase of phosphate rock marketing that began in the 1930s (Pardee 1937).

Earl McDonald (1988) could not recall any quarrying or processing of phosphate rock at the site when he worked at the mine in 1964 and 1965. Clifford Gravely (1988) indicated that some "prospecting" for phosphate rock may have occurred in the vicinity, but could not specifically recall any processing of that material at the site. If phosphates were processed at this site, it may have occurred after destruction of the lime plant.

Evaluation and Recommendation

This site does not appear to qualify for nomination to the National Register of Historic Places due to a lack of physical integrity. Although the site appears to have operated fairly continuously for at least six decades and is identified as a major producer of lime products for the western part of the state, the features remaining at the site do not clearly represent any identifiable period of operation. For example, although the complex of quarries, tipple, and tramway all may be associated temporally, they do not appear to be associated with the kilns. Perry (1949:35) mentions an old, abandoned, "crude stone lime kiln close to the present plant," but HRA did not locate a feature of this description during the 1987 field survey.

The kilns present at the site were part of a later processing system built sometime prior to 1949. A photo of the lime plant included in Perry's report shows that the plant consisted of a number of structures, none of which currently exist. Although the kilns remain, they do not appear to have been associated historically with the other features in the immediate vicinity -- namely, the tramway and associated quarries and the tipple.

Reclamation plans for this site are as yet undecided. Reclamation engineers indicated that there are no immediate environmental concerns associated with this site. Water contamination does not appear to be a problem. In addition, the site lies on private property and the features of the site that may represent "attractive nuisances" (i.e., the tipple and the elevated tramway) should not be accessible to the public. In addition, although the upper quarry is probably a visual blight on the landscape, it would be difficult and expensive to reclaim because it is located in a bedrock outcrop, and material to fill the area would have to be imported.

5.0 SUMMARY

Cultural resource inventories conducted at the five reclamation areas discussed in this report resulted in the recording of six historic and one prehistoric cultural resource sites. None of the historic sites appear to be eligible for nomination to the National Register of Historic Places. In general, these sites lack physical integrity and no longer adequately represent the historic events with which they were originally associated.

The National Register eligibility of the single prehistoric site (24RB1508) recorded during the inventory of the Rock Springs project area is undetermined at this time. Preliminary plans prepared by the reclamation engineer indicate that the site lies outside the proposed construction boundary, and would not be impacted during reclamation activities. Should this plan change, to include site 24RB1508 within the reclamation construction boundary, it would be advisable to conduct further investigations (including subsurface testing) in order to determine its eligibility status. Further investigations should be conducted prior to the initiation of any ground-disturbing activity.

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